

City of Alexandria Storm Sewer Capacity Analysis (CASSCA) Corrugated Metal Pipe Condition Assessment

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Introduction

As part of the City of Alexandria Storm Sewer Capacity project, Closed-Circuit Television (CCTV) inspections of corrugated metal pipe (CMP) in nine sewersheds were completed. A total of 6,881 feet of storm water pipeline was inspected by Video Pipe Services (VPS):

Hooffs Run	1,652 ft
Four Mile Run	1,083
Holmes Run	1,379
Taylor Run	171
Backlick Run	102
Strawberry Run	228
Potomac River	1,030
Cameron Run	1,005
CSO-Pendleton St	231

This Technical Memorandum summarizes the analysis and results of the CCTV inspections and assesses the condition of CMP storm pipes in the City.

Manhole inspections and pipe lamping were conducted within the City independently from this CCTV effort for storm pipes larger than 24 inches in diameter. The findings are presented in condition assessment technical memorandums for each sewershed and provided under separate cover.

The CCTV inspections performed throughout the City were conducted according to the guidelines established by the NASSCO Pipeline Assessment and Certification Program (PACP). The inspections were conducted from the surface and did not require confined space entry. The CMP lines were cleaned using jetting techniques to remove light debris and help improve clarity on the video recording.

The defects observed during the CCTV inspections were converted from the PACP format into the Sewer Condition Risk Evaluation Algorithm Model (SCREAM™). SCREAM is a database that systematically compiles data produced from various asset inspection methods, including CCTV. Similar to PACP, the SCREAM rating system produces scores for the overall condition of each asset, and also for the categories of Structural, Maintenance and I/I group defects for each asset. The SCREAM scoring scale ranges from 0 to 100; a score of 0 indicates no defects were observed and a score of 100 indicates the

most severe defects were observed. To represent the overall condition of an asset, an overall score is derived from the scores of the individual defects of that asset.

The following defect categories have been established in SCREAM for different conditions of sewer facilities along with corresponding ranges for each defect category. It is important to note that because CCTV evaluates the entire pipe and lamping only evaluates a portion of the pipe, the CCTV category score ranges differ from the lamping category ranges presented in previous Technical Memoranda. The examples provided in the table below are meant to show a typical defect found in an asset that would result in the condition category rating.

Defect Category	Score Range	Example
None	0	n/a
Few	1-20	Infiltration weeper, small deposits or debris
Minimum	21-40	Pipe cracks less than 1/8", minor corrosion
Moderate	41-60	Pipe deformation or sagging, large infiltration flow
Major	61-80	Large cracks or broken pipe, heavy debris or obstacle blockage
Extreme	81-100	Collapsed Pipe, extreme damage and in need of immediate attention

CMP Pipeline Inspections

Figure 1 shows the total length of CMP identified within each SCREAM defect category as described in the previous section. Approximately half of the pipeline inspected (3,730 ft) had no observed defects, few defects (SCREAM score 1-20), or minimum defects (score 21-40). Approximately one quarter of the total length inspected (1,860 ft) had moderate defects (score 41-60). The remaining length (1,360) had either major damage (score 61-80) or extreme damage (score 81-100); roughly 10 percent of the total inspected length for each.

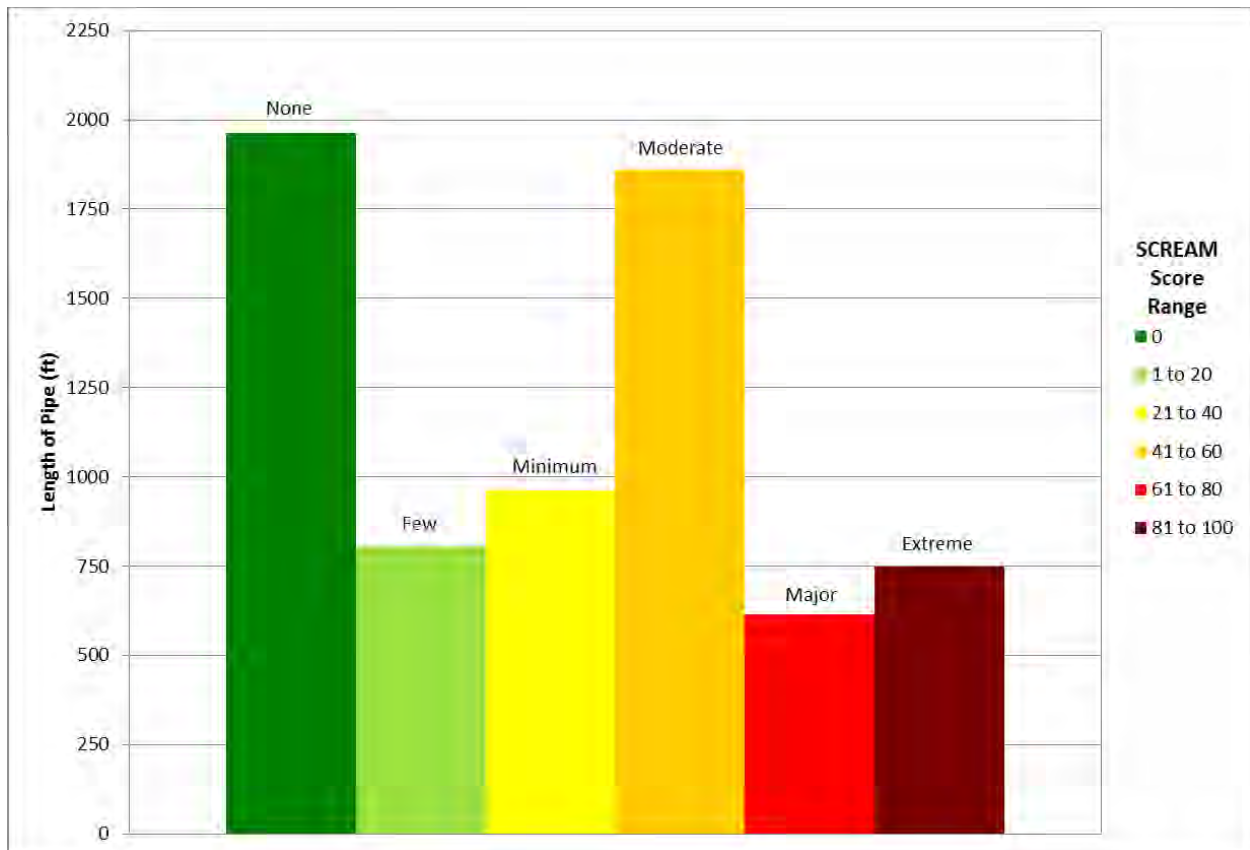


Figure 1. Condition of CMPs Across All Sewersheds.

Figure 2 shows the distribution of pipeline SCREAM scores in each shed. For example, in Hooffs Run, about one-sixth of the total length has no defects, one sixth has few defects, and so on.

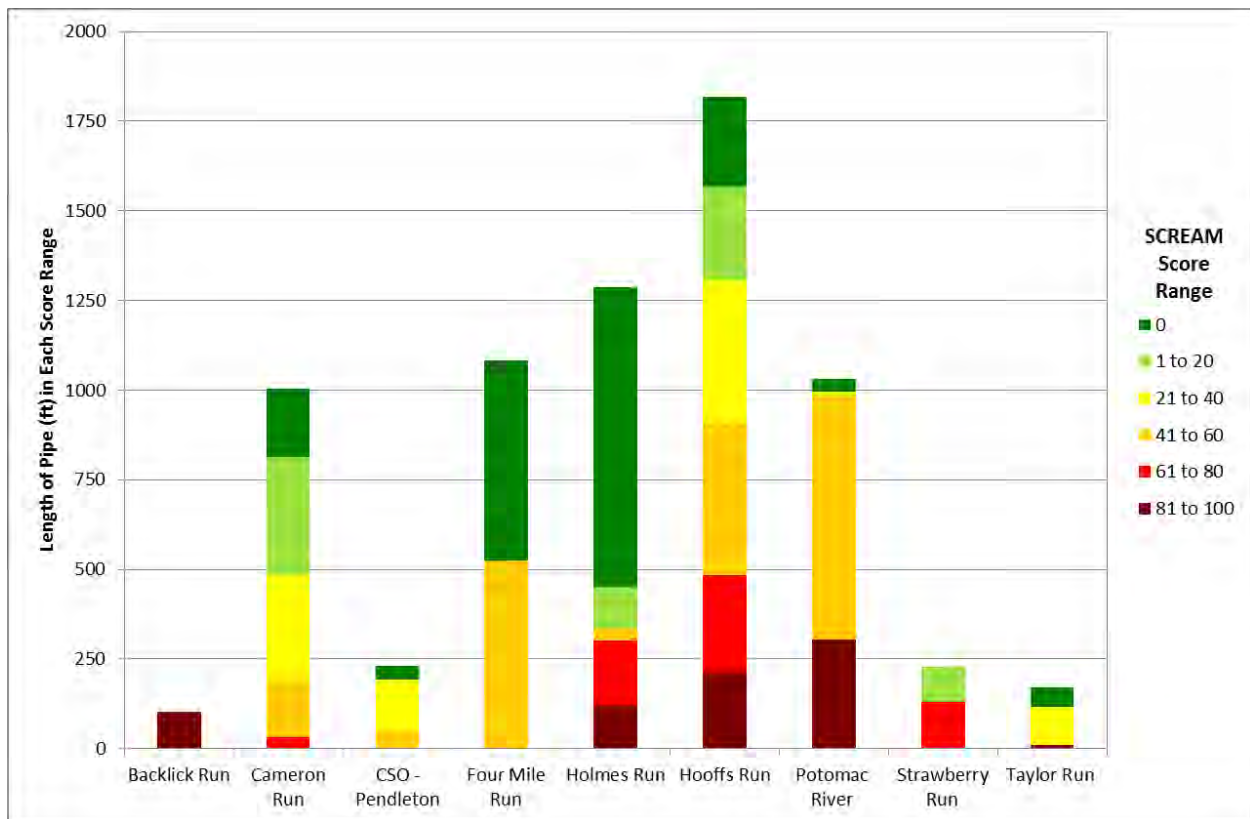


Figure 2. Pipeline Inspection Problem Summary by Sewershed.

Figure 3 displays the three components that contribute to the total SCREAM score: structural, maintenance, and infiltration. The structural score indicates the severity to which the pipe was broken, corroded, deformed, etc. The maintenance score reflects the degree of pipeline damage from obstacles, roots, debris or deposits. The infiltration score represents the amount of infiltration or inflow observed in the CMP pipe during inspection.

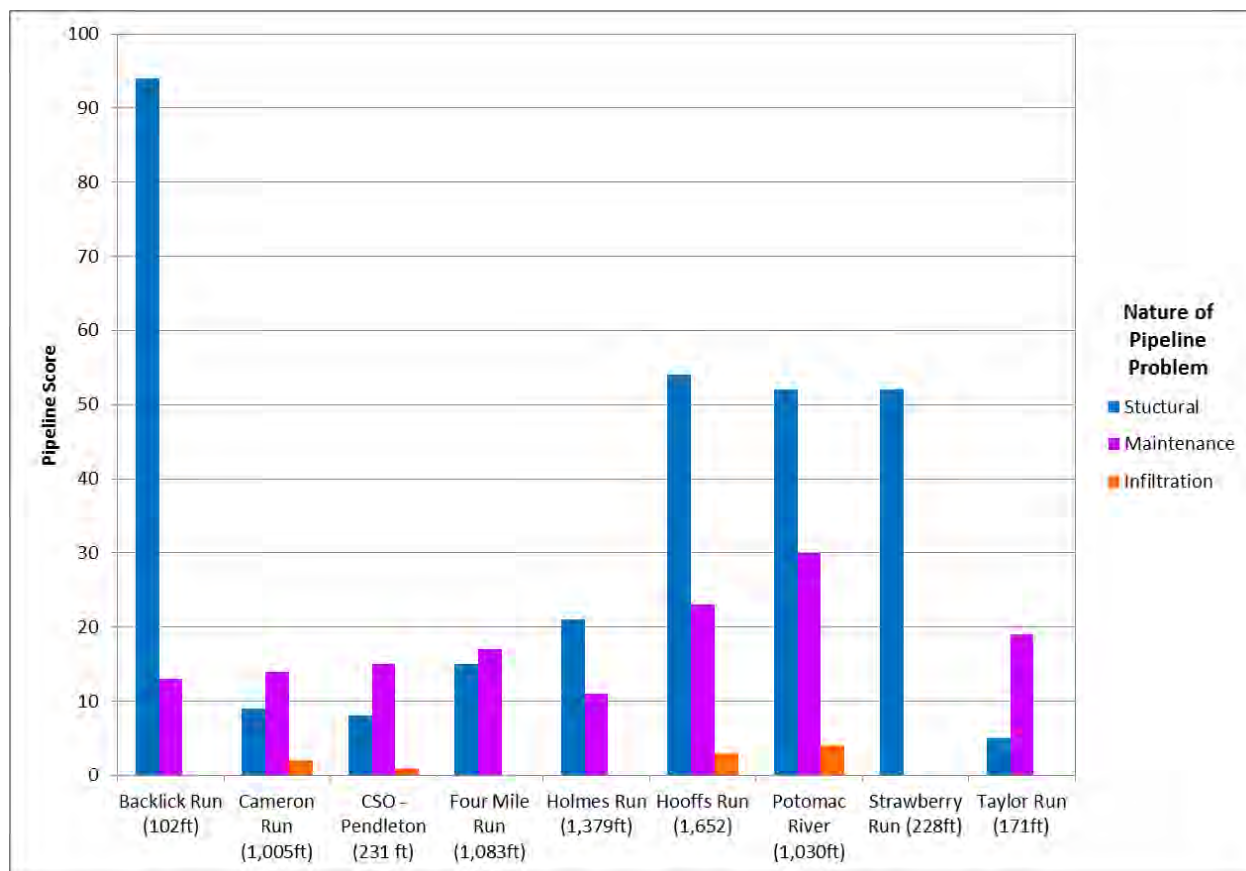


Figure 3. Weighted SCREAM Scores by Type and Sewershed.

The total score is computed using a complex algorithm which takes into account the severity of individual defects – the sum of the sub-scores does not yield the total. Figure 3 above is a visualization of the weighted structural, weighted maintenance, and weighted infiltration scores for each sewershed. The weighted score is computed by an algorithm that multiplies the defect severity by the length of damaged pipe, and normalizes it against the total length of pipe inspected.

Generally, the problems in the inspected CMPs were structural and maintenance in nature. For example, joint separations, pipe corrosion, deformed pipes, or holes are all structural problems. Settled debris and other blockages are classified as maintenance problems. Problems associated with infiltration were not prevalent during the CMP inspections. Note that the outlier structural score in Backlick Run stems from structural damages dominating the type of observed problems in a short length of inspected pipe.

The original task called for the CCTV inspections of all corrugated metal storm pipes within the City. Not all of the segments could be inspected or inspected fully. Completed CCTV inspections were delivered for approximately 42% of the requested CMPs by length. It was discovered that approximately 15% of the original requested amount were not actually constructed of corrugated metal and no survey was conducted. Inspections were unavailable for a combined 22% because the access structures could not be found (such as a buried manhole) or access was not possible (such as a fully submerged pipe outlet). Heavy debris present in the storm pipe precluded inspection of another 22% of the CMPs. Figure 13 is a summary of the inspection completion status.

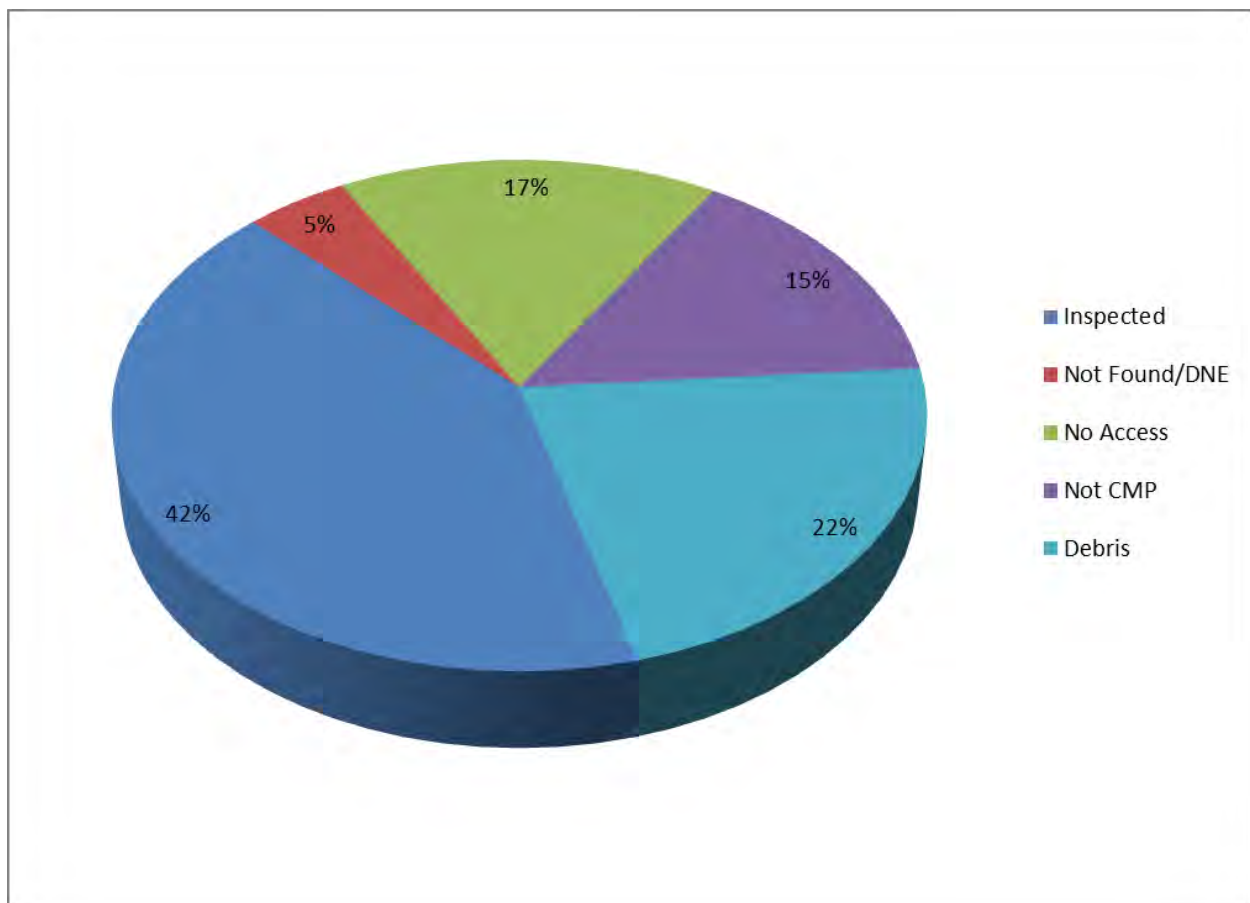


Figure 4: Summary of Inspected vs. Non-Inspected CMP Segments.

The following images are examples of defects observed in the CMP segments. Though they provide a good range of the types of problems encountered, these are not necessarily comprehensive of all issues.



Figure 5. Hole in Pipe Wall.
Segment 007740STMP, Hooffs Run, SCREAM Score = 89



Figure 6. Settled Deposits.
Segment 011898STMP, Four Mile Run, SCREAM Score = 47



Figure 7. Soil Visible Through Hole in Pipe Wall.
Segment 014553STMPHolmes Run, SCREAM Score = 97



Figure 8. Horizontal Pipe Wall Separation.
Segment 000822STMP, Taylor Run, SCREAM Score = 100



Figure 9. Heavy Debris Accumulation and Standing Water.
Segment 004805STMP, Backlick Run, SCREAM Score = 94

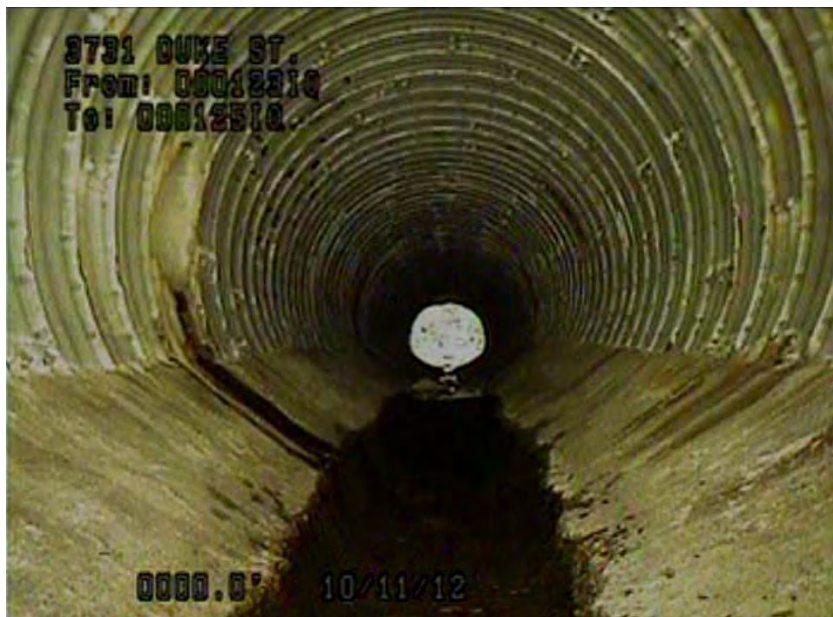


Figure 10. Surface Corrosion and Settled Gravel Deposits.
Segment 003268STMP, Strawberry Run, SCREAM Score = 80



Figure 11. Large Joint Separation,.
Segment 007343STMP, Potomac River Sewershed, SCREAM Score = 100



Figure 12. Deformed Pipe Crown.
Segment 005723STMP, Cameron Run, SCREAM Score = 70

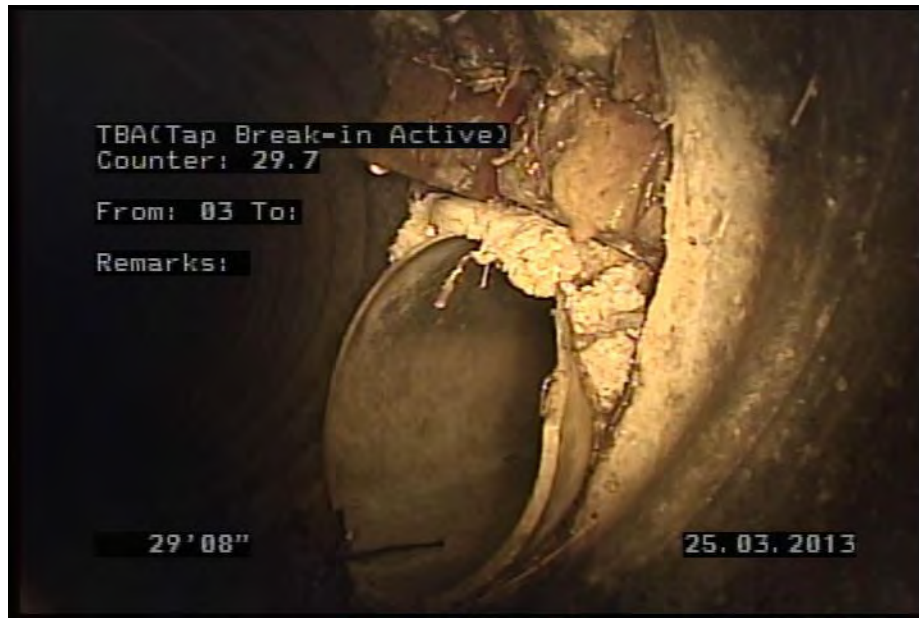


Figure 13. Tap Break-In & Infiltration.
Segment 007847STMP, CSO-Pendleton, SCREAM Score = 42

More specific information about the CMP segments inspected and the observed problems is provided in the appendices to this memorandum. Appendix A is a series of location maps that display the inspected pipe segments according to their defect level within each sewershed.

Appendix B includes SCREAM CCTV Inspection Status List for each sewershed, with the pipe segments sorted in a descending order based on their SCREAM defect score.

SCREAM uses a pre-determined specific list of defect types and severities to determine if an *Urgent Corrective Action* is required for a pipe segment. For example, a pipe blockage of 70% or more is included in the pre-determined list of defect types. Any pipe segment that exhibits a blockage of 70% or more would be designated by SCREAM as requiring urgent corrective action. Appendix C shows the SCREAM CCTV Urgent Observation List in a descending order. There were eight (8) instances of defects that were flagged as urgent; these are listed first.

Appendix D is a comprehensive table of all the observed problems during the CCTV inspections.

Appendix E summarizes the CMP segments that were not inspected.

Appendix F and G are the original inspection reports and PACP scoring sheets compiled by Video Pipe Services. The inspection reports are sorted by Pipe Segment ID and provide brief descriptions of the observed defects and a schematic representation of each problem.

The original inspection recordings, along with the PACP and SCREAM databases, will be delivered in electronic format to the City under separate cover.

Summary

In total, 6,881 feet of corrugated metal storm pipes were inspected via CCTV. Approximately one-third of the CMP inspected (1,960 ft) was free of problems. One-tenth (750 ft) of the total inspected length exhibited problems classified as Extreme; another tenth (600 ft) had problems classified as Major. The condition of the remaining pipes varied from minimal problems to moderate problems. The majority of the observed problems in the CMP segments were related to the structural integrity of the pipe or debris blocking the flow of water.

Appendix A – Location Maps of CMP Segments

Color Coded by SCREAM Defect Severity

Figure A1: Hooffs Run Condition of Storm Pipelines (Color coded by Severity of Defects).

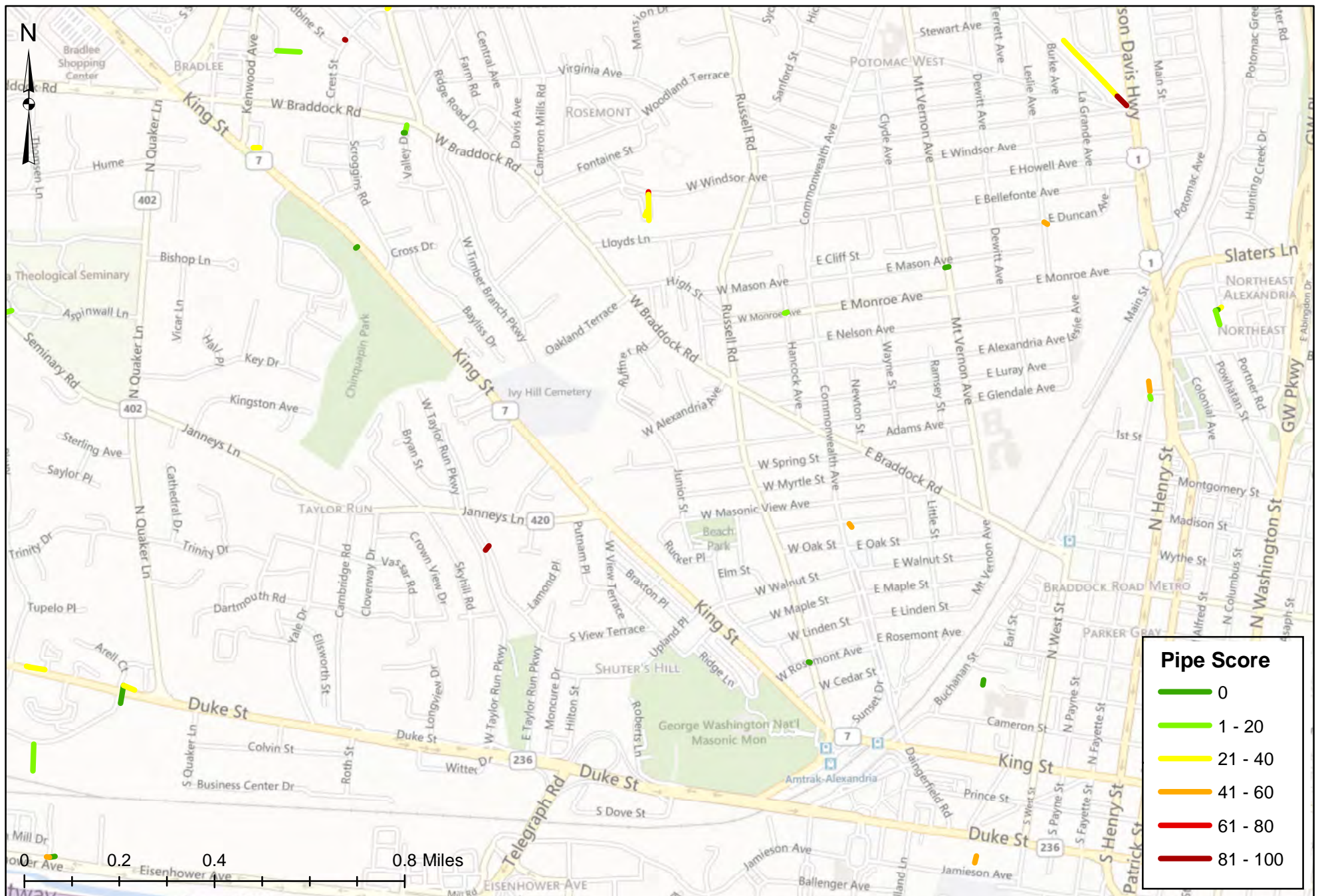


Figure A2: Four Mile Run East Condition of Storm Pipelines (Color coded by Severity of Defects).

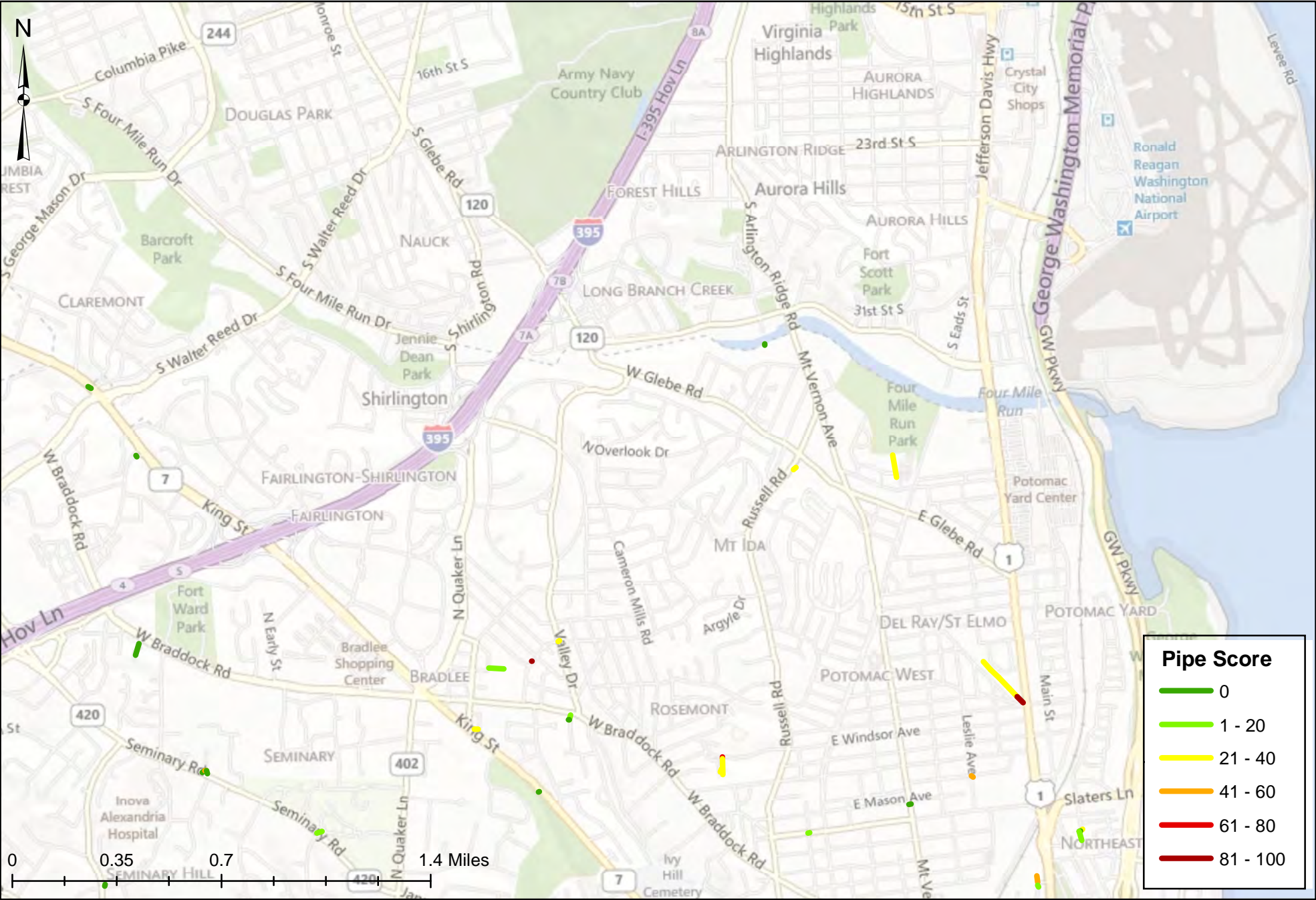


Figure A3: Four Mile Run West Condition of Storm Pipelines (Color coded by Severity of Defects).

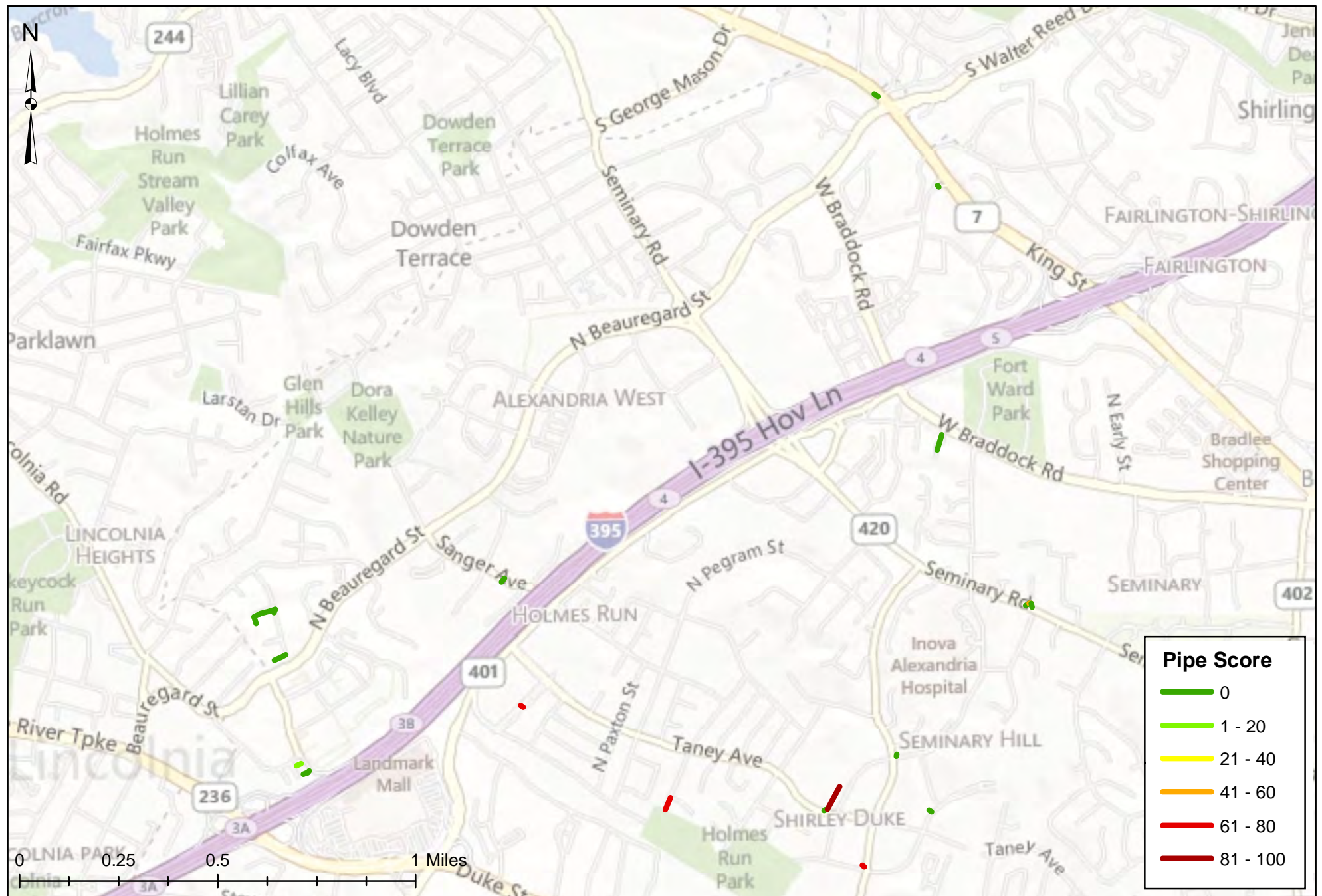
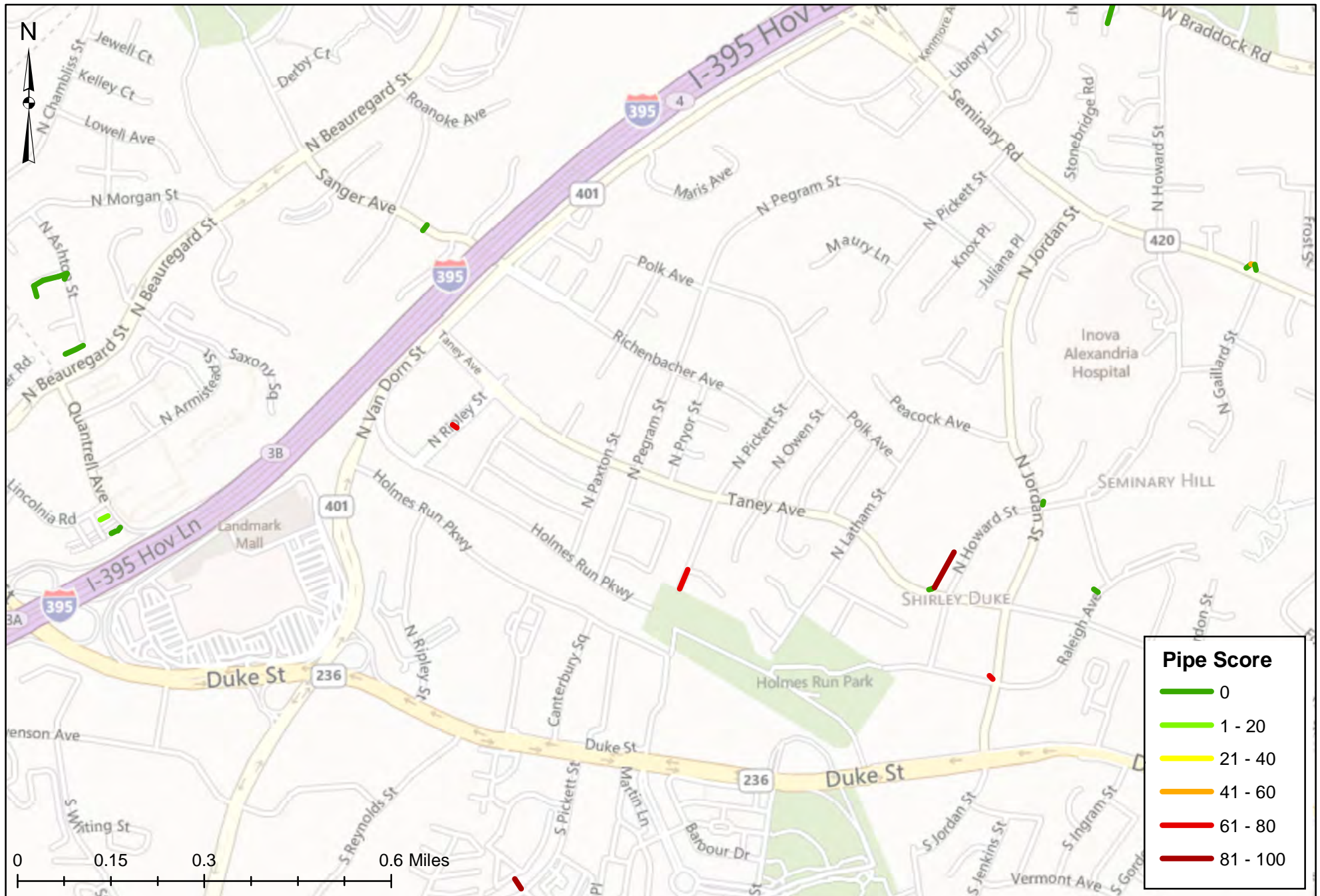


Figure A4: Holmes Run Condition of Storm Pipelines (Color coded by Severity of Defects).



Pipe Score

- 0
- 1 - 20
- 21 - 40
- 41 - 60
- 61 - 80
- 81 - 100

Figure A6: Backlick Run Condition of Storm Pipelines (Color coded by Severity of Defects).

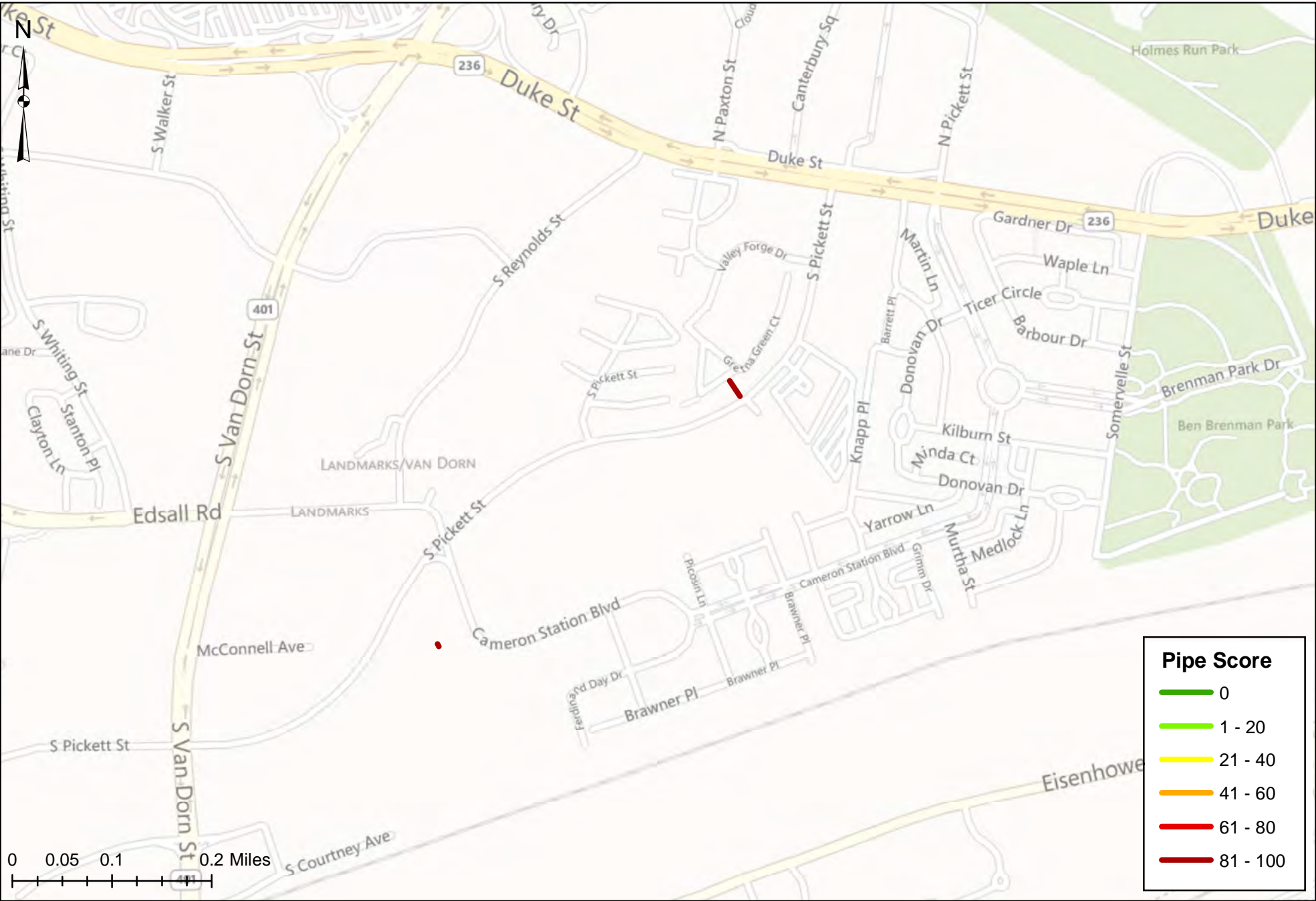


Figure A7: Strawberry Run Condition of Storm Pipelines (Color coded by Severity of Defects).

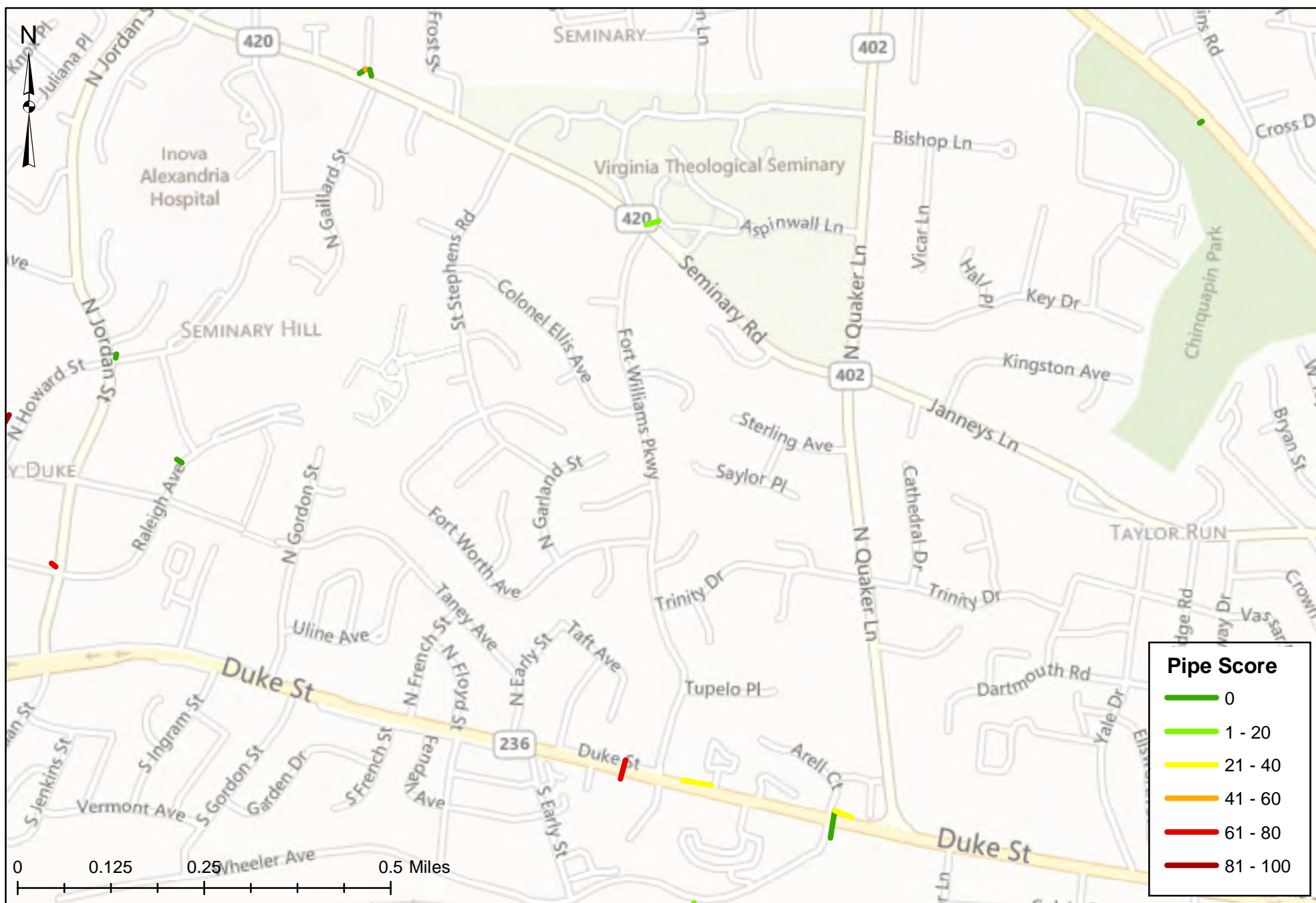


Figure A8: Potomac River Condition of Storm Pipelines (Color coded by Severity of Defects).

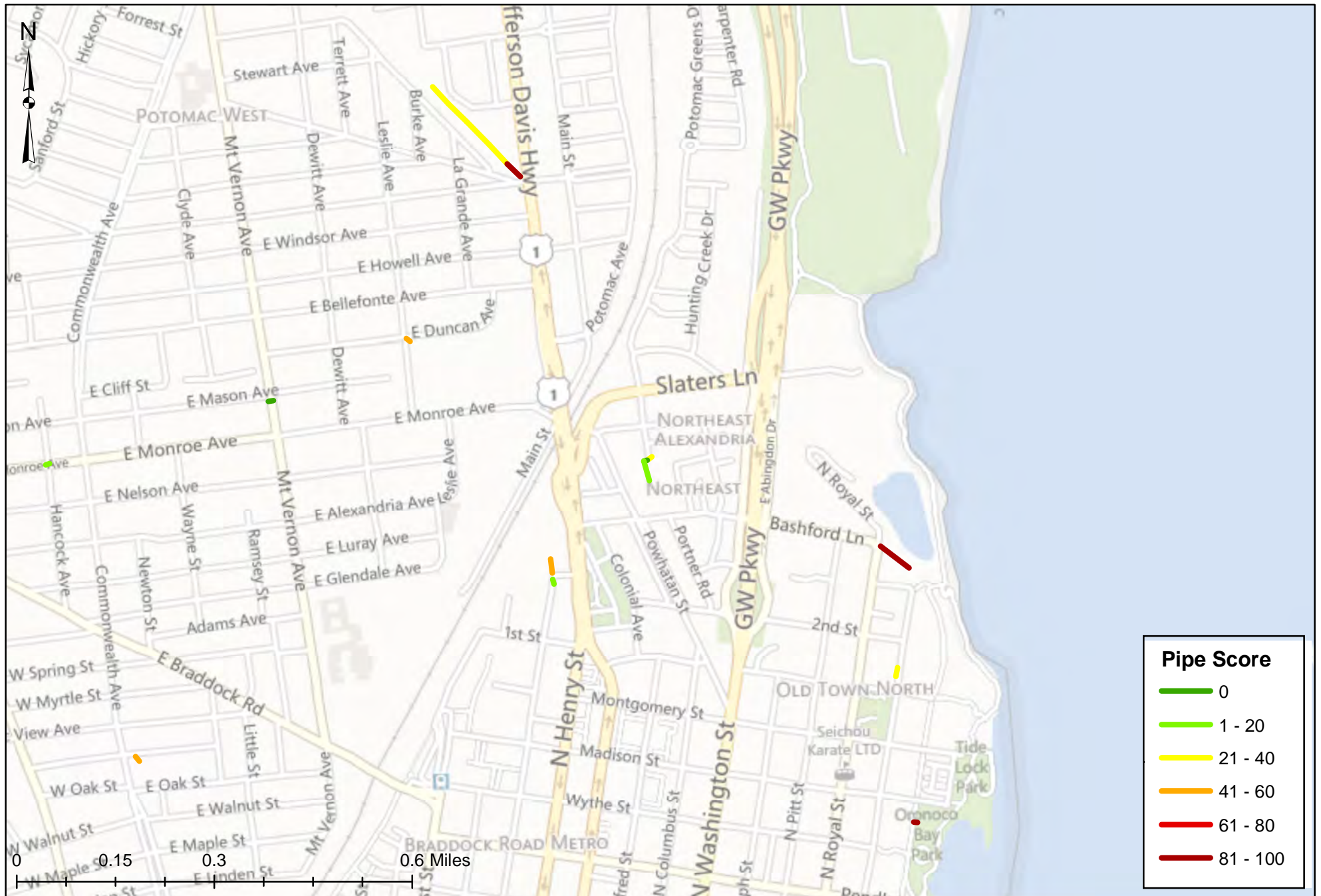


Figure A9: Cameron Run Condition of Storm Pipelines (Color coded by Severity of Defects).

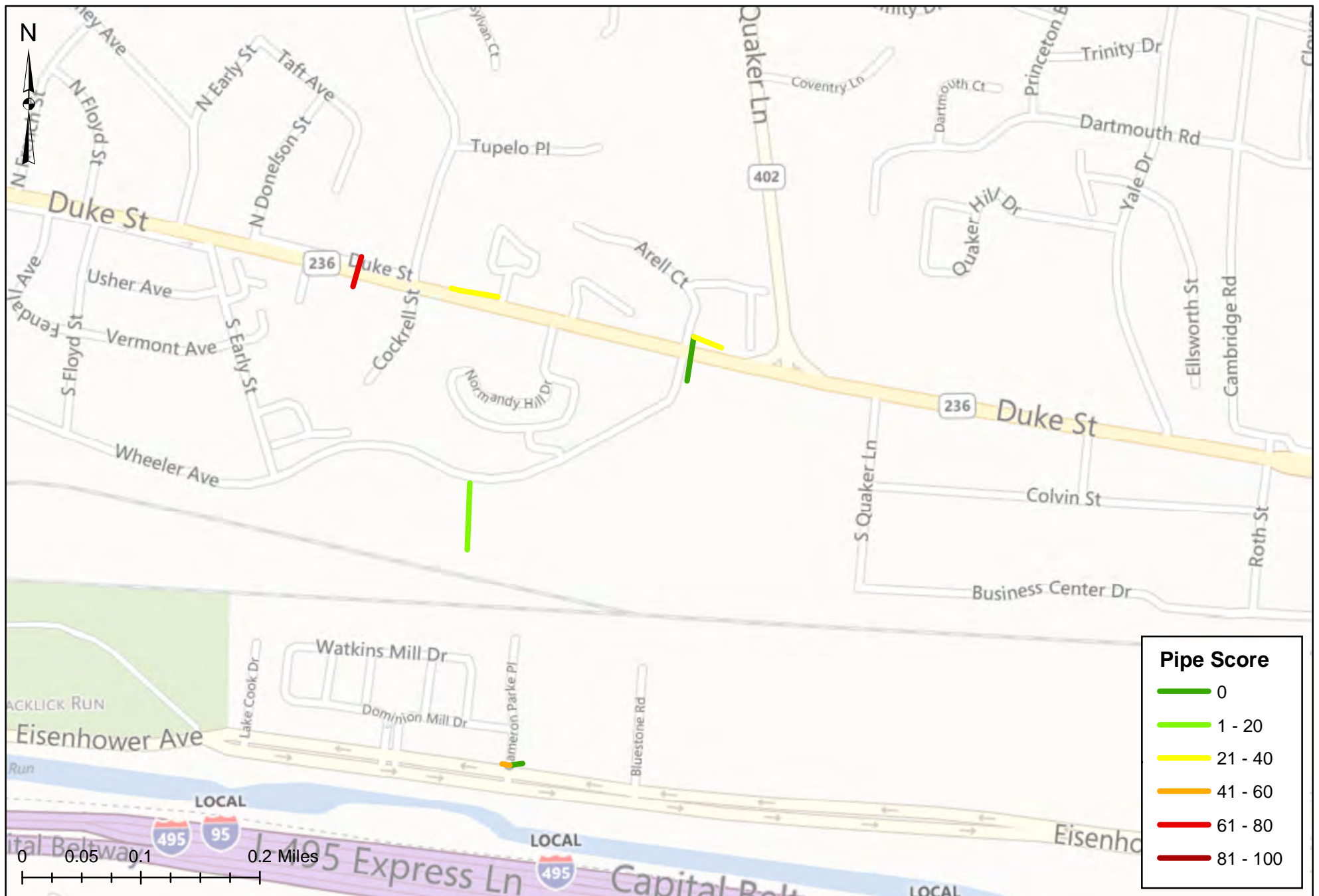
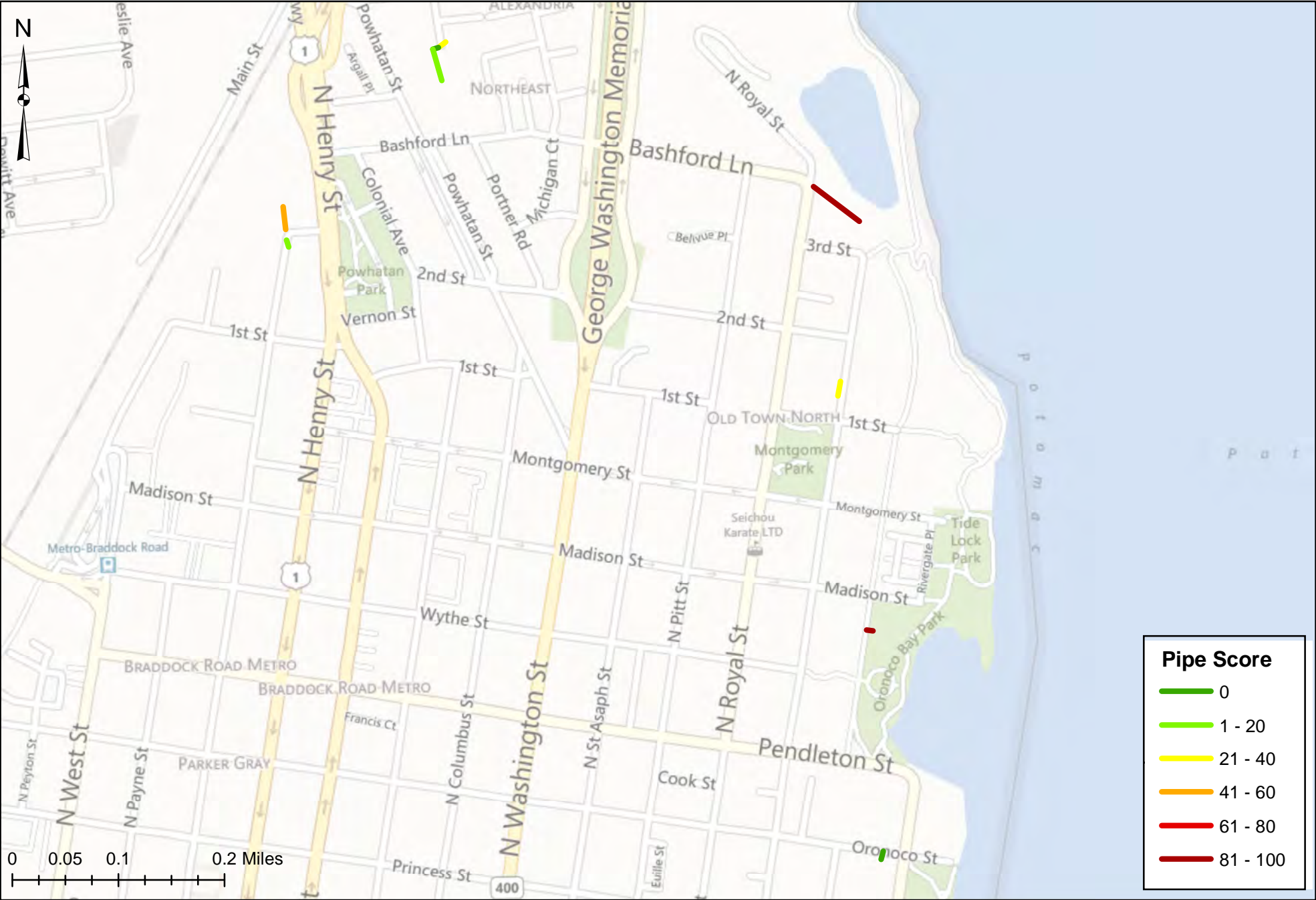


Figure A10: CSO - Pendleton Street Area Condition of Storm Pipelines (Color coded by Severity of Defects).



Appendix B – CCTV Inspection Lists

Sorted by SCREAM Defect Severity

SCREAM™ CCTV Inspection Status List (Grouped by Sewershed, Sorted by Total Score)

Pipe ID	Street	Diam (in)	Date	Crew	US MH	DS MH	US Basin	Total Score	Infil. Score	Maint. Score	Struc. Score	Comment
008085STMP	2602 CREST ST	12	07/25/12	JAW	005426IN	002510SMH	HOOFFS RUN	100	0	0	100	- Stand Alone Inspection
007740STMP	501 RICHARDS LN.	15	07/17/12	SMU	005623IN	002635SMH	HOOFFS RUN	89	0	30	89	LIGHT CLEAN - Merged Inspections Num
009627STMP	601 COMMONWEALTH AVE.	15	07/17/12	SMU	000541IO	007752IN	HOOFFS RUN	70	0	60	38	LIGHT CLEAN,,000541IO HAS BEEN ABANDONED - Merged Inspections Num
009864STMP-R	426 E.MONROE AVE.	12	07/20/12	SMU	007990IN	007989IN	HOOFFS RUN	68	0	68	0	LIGHT CLEAN,,REVERSE SET-UP - Merged Inspections Num
014552STMP	1501 CAMERON ST	48	07/26/12	JAW	003268SMH	002500ND	HOOFFS RUN	65	6	12	61	- Merged Inspections Num
009582STMP	1200 N.FAYETTE ST.	18	07/18/12	SMU	007824IN	003054SMH	HOOFFS RUN	62	0	0	62	LIGHT CLEAN - Stand Alone Inspection
006957STMP	1416 DUKE ST	36	07/25/12	JAW	001663SMH	004921IN	HOOFFS RUN	51	8	21	38	- Stand Alone Inspection
007739STMPR	501 RICHARDS LA	48	07/26/12	JAW	002634SMH	002636SMH	HOOFFS RUN	45	0	45	0	- Merged Inspections Num
009376STMP	2801 VALLEY DR.	15	07/20/12	SMU	000450CB	002539SMH	HOOFFS RUN	37	0	0	37	LIGHT CLEAN - Stand Alone Inspection
009396STMP	501 RICHARDS LN.	24	07/17/12	SMU	002633SMH	004500SMH	HOOFFS RUN	31	0	7	24	LIGHT CLEAN,,DWN STRM MH IS NEWLY FOUND & BURRIED - Merged Inspections
007276STMP	1800 EISENHOWER AVE.	18	07/16/12	SMU	004477IN	004476IN	HOOFFS RUN	27	0	27	0	LIGHT CLEAN - Merged Inspections Num
010103STMP	1024 N.HENRY ST.	18	07/18/12	SMU	003052SMH	003053SMH	HOOFFS RUN	25	0	0	25	LIGHT CLEAN - Merged Inspections Num
014550STMP	501 RICHARDS LN.	24	07/17/12	SMU	004500SMH	005623IN	HOOFFS RUN	25	0	0	25	LIGHT CLEAN,,UP STRM MH IS NEWLY FOUND & BURRIED - Merged Inspections
009710STMP	9 W.MONROE AVE.	15	07/18/12	SMU	006207IN	003432SMH	HOOFFS RUN	25	0	0	25	LIGHT CLEAN - Merged Inspections Num
014551STMP	1610 MT.VERNON AVE.	15	07/18/12	SMU	006230IN	006231IN	HOOFFS RUN	25	0	0	25	LIGHT CLEAN,,PIPE #2 - Merged Inspections Num
009058STMP	2316 VALLEY DR.	18	07/17/12	SMU	002648SMH	000431CB	HOOFFS RUN	22	0	0	22	LIGHT CLEAN - Merged Inspections Num
0080765STMP	1525 KENWOOD AV	60	07/24/12	JAW	007516IN	000690ND	HOOFFS RUN	14	0	0	14	- Stand Alone Inspection
007282STMP	2000 EISENHOWER AVE.	18	07/16/12	SMU	004484IN	000305IO	HOOFFS RUN	0	0	0	0	LIGHT CLEAN - Merged Inspections Num
009091STMP	2316 VALLEY DR.	15	07/17/12	SMU	007561IN	002648SMH	HOOFFS RUN	0	0	0	0	LIGHT CLEAN - Merged Inspections Num
009717STMP	1610 MT.VERNON AVE.	15	07/18/12	SMU	006230IN	006231IN	HOOFFS RUN	0	0	0	0	LIGHT CLEAN,,PIPE #2 - Merged Inspections Num
009864STMP	426 E.MONROE AVE.	12	07/20/12	SMU	007990IN	007989IN	HOOFFS RUN	0	0	0	0	LIGHT CLEAN,,REVERSE SET-UP - Merged Inspections Num
007739STMP	501 RICHARDS AVE	48	07/26/12	JAW	002634SMH	002636SMH	HOOFFS RUN	0	0	0	0	- Merged Inspections Num
009927STMP	1614 BOYLE ST	48	07/26/12	JAW	003268SMH	002500ND	HOOFFS RUN	0	0	0	0	- Merged Inspections Num
010021STMP	101 W ROSEMONT AVE	15	07/25/12	JAW	006039IN	003201SMH	HOOFFS RUN	0	0	0	0	INLET HAS NO MANHOLE - Stand Alone Inspection
011898STMP	3601 RUSSELL RD	33	07/27/12	JAW	007149IN	009500IN	FOUR MILE RUN	47	0	39	14	- Stand Alone Inspection
012746STMP	3600 COMMONWEALTH AV	39	07/27/12	JAW	007118IN	000429IO	FOUR MILE RUN	46	0	16	38	- Stand Alone Inspection
000339ND	6020 NAGY PL	18	08/23/12	GTT	000339ND	000979S MH	FOUR MILE RUN	0	0	0	0	- Stand Alone Inspection
000979SMH	6020 NAGY PL	18	08/23/12	GTT	000979SMH	002797 IN	FOUR MILE RUN	0	0	0	0	- Stand Alone Inspection
002795IN	N ASHTON ST	24	08/23/12	GTT	002795IN	002794 IN	FOUR MILE RUN	0	0	0	0	- Stand Alone Inspection
002797IN	6008 NAGY PL	18	08/23/12	GTT	002797IN	002795 IN	FOUR MILE RUN	0	0	0	0	- Stand Alone Inspection

Pipe ID	Street	Diam (in)	Date	Crew	US MH	DS MH	US Basin	Total Score	Infil. Score	Maint. Score	Struc. Score	Comment
002799IN	830 N ASHTON ST	15	08/23/12	GTT	002799IN	002794 IN	FOUR MILE RUN	0	0	0	0	- Stand Alone Inspection
005511STMP	2005 BRADDOCK CT	73	09/05/12	GTT	003882 IN	0013975 MH	FOUR MILE RUN	0	0	0	0	- Stand Alone Inspection
012479STMP	601 FOUR MILE RD	15	09/13/12	GTT	008416 IN	000419 IO	FOUR MILE RUN	0	0	0	0	- Stand Alone Inspection
001829STMP	N HAMPTON DR.	48	04/11/13	EC	000957IN	000326SMH	FOUR MILE RUN	0	0	0	0	- Stand Alone Inspection
001846STMP	KING ST	15	04/15/13	EC	000966IN	000329SMH	FOUR MILE RUN	0	0	0	0	- Stand Alone Inspection
000290ND	320 N JORDAN ST	48	08/30/12	GTT	000290ND	000758SMH	HOLMES RUN	100	0	100	0	- Stand Alone Inspection
014553STMP	1600 CHAPEL HILL DR.	27	09/24/12	SMU	002501ND	003710IN	HOLMES RUN	97	0	29	96	LINE IS NEWLY FOUND,, NOT SHOWN ON MAPS - Stand Alone Inspection
003865STMP	320 N JORDAN ST	15	08/28/12	GTT	002276IN	002275IN	HOLMES RUN	85	0	0	85	- Stand Alone Inspection
005294STMP	633 N.RIPLEY ST.	15	09/25/12	SMU	003298IN	001073SMH	HOLMES RUN	85	0	17	84	PIPE CROSSES UNDER N.RIPLEY ST. - Stand Alone Inspection
005873STMP	332 N.PICKETT ST.	24	09/24/12	SMU	001222SMH	000266IO	HOLMES RUN	79	0	18	74	- Stand Alone Inspection
005435STMP	1600 CHAPEL RD	43	09/24/12	SMU	003711IN	003710IN	HOLMES RUN	52	0	52	0	003710IN HAS AN ADDITIONAL INFLUENT ARCHED CMP - Stand Alone
006305STMP	6003 RICKETTS WK.	60	09/21/12	SMU	001384SMH	000550ND	HOLMES RUN	19	0	9	9	- Stand Alone Inspection
002552STMP	320 N JORDAN ST	12	08/28/12	GTT	002266IN	000284ND	HOLMES RUN	0	0	0	0	- Stand Alone Inspection
004444STMP	320 N JORDAN ST	8	08/28/12	GTT	000987SMH	00274IN	HOLMES RUN	0	0	0	0	- Stand Alone Inspection
004613STMP	5501 SANGER AVE	4	08/31/12	GTT	000047CP	000048CP	HOLMES RUN	0	0	0	0	- Stand Alone Inspection
005434STMP	1600 CHAPEL RD	72	08/31/12	GTT	003710IN	007309IN	HOLMES RUN	0	0	0	0	- Stand Alone Inspection
005435STMP	1600 CHAPEL RD	43	08/31/12	GTT	003711IN	003710IN	HOLMES RUN	0	0	0	0	- Stand Alone Inspection
005436STMP	SEMINARY RD	8	08/31/12	GTT	003712IN	003711IN	HOLMES RUN	0	0	0	0	- Stand Alone Inspection
006851STMP	723 N ASHTON ST	48	08/30/12	GTT	004786IN	004787IN	HOLMES RUN	0	0	0	0	- Stand Alone Inspection
006852STMP	705 N ASHTON ST	48	08/30/12	GTT	004787IN	004788IN	HOLMES RUN	0	0	0	0	- Stand Alone Inspection
006303STMP	6005 RIDDLE WK.	60	09/21/12	SMU	001383SMH	000549ND	HOLMES RUN	0	0	0	0	- Stand Alone Inspection
006756STMP	6003 RIDDLE WK.	15	09/21/12	SMU	001383SMH	001510SMH	HOLMES RUN	0	0	0	0	001382SMH DOES NOT EXIST - Stand Alone Inspection
003844STMP	TANEY AVE	10	04/15/13	EC	002242IN	002241IN	HOLMES RUN	0	0	0	0	- Stand Alone Inspection
003848STMP	TANEY AVE	10	04/15/13	EC	000758SMH	002242IN	HOLMES RUN	0	0	0	0	- Stand Alone Inspection
000822STMP	501 W.TAYLOR RUN PY.	24	09/26/12	SMU	000769IN	000057IO	TAYLOR RUN	100	0	0	100	MAJORITY OF PIPE SEGMENT IS 18in CONCRETE - Stand Alone
000178STMP	2735 FRANKLIN CT.	42	09/26/12	SMU	000056IN	000039ND	TAYLOR RUN	30	0	30	0	- Stand Alone Inspection
000198STMP	KING ST.	30	04/11/13	EC	000030SMH	000017IO	TAYLOR RUN	0	0	0	0	- Stand Alone Inspection
005479STMP	103 S.PICKETT ST.	18	04/15/13	EC	004063IN	004040IN	BACKLICK RUN	97	0	0	97	- Stand Alone Inspection
004805STMP	520 CAMERON STATION	48	09/28/12	SMU	001024SMH	000215IO	BACKLICK RUN	94	0	92	77	PIPE HAS LARGE AMOUNTS OF SAND&GRAVEL - Stand Alone Inspection
005479STMP	103 S.PICKETT ST.	18	09/28/12	SMU	004063IN	004040IN	BACKLICK RUN	83	0	0	83	PIPE RUNS DWN BETWEEN 234-236 GREYNA GREEN CT. - Stand Alone Inspection
003268STMP	3731 DUKE ST.	84	10/11/12	SMU	000123IO	000125IO	STRAWBERRY RUN	80	5	25	77	CLEANING NOT NECESSARY,,BOTTOM HALF OF PIPE PARGED - Stand
003268STMP	3731 DUKE ST.	84	04/11/13	EC	000123IO	000125IO	STRAWBERRY RUN	80	0	0	80	- Stand Alone Inspection

Pipe ID	Street	Diam (in)	Date	Crew	US MH	DS MH	US Basin	Total Score	Infil. Score	Maint. Score	Struc. Score	Comment
004591STMP	3737 SEMINARY RD.	24	10/16/12	SMU	002897IN	002898IN	STRAWBERRY RUN	78	0	33	76	11ft.PIECE OF PIPE PARTIALLY EXPOSED ABOVE GROUND - Stand Alone
004591STMP	3737 SEMINARY RD.	24	04/11/13	EC	002897IN	002898IN	STRAWBERRY RUN	15	0	0	15	- Stand Alone Inspection
007343STMP-R	701 N.FAIRFAX ST.	18	10/01/12	SMU	002364SMH	002363SMH	POTOMAC RIVER	100	19	0	100	REVERSE SET-UP - Merged Inspections Num
007065STMP	402 BASHFORD LA.	15	10/01/12	SMU	002371SMH	005126IN	POTOMAC RIVER	100	0	66	100	CAN NOT ACESS DWN STRM STRUCTURE - Stand Alone Inspection
012184STMP	2300 JEFFERSON DAVIS	18	10/08/12	SMU	008278IN	008301IN	POTOMAC RIVER	96	6	21	96	008278 HAS BEEEN LOCATED - Stand Alone Inspection
007099STMP	1000 N.FAIRFAX ST.	15	10/01/12	SMU	002390SMH	002391SMH	POTOMAC RIVER	83	0	59	77	- Stand Alone Inspection
010887STMP	2300 JEFFERSON DAVIS	18	10/08/12	SMU	008277IN	008278IN	POTOMAC RIVER	50	0	33	45	- Stand Alone Inspection
007099STMP	1000 N.FAIRFAX ST.	15	04/15/13	EC	002390SMH	002391SMH	POTOMAC RIVER	50	0	42	16	- Stand Alone Inspection
010888STMP	2300 JEFFERSON DAVIS	18	10/08/12	SMU	008276IN	008277IN	POTOMAC RIVER	49	7	29	38	- Stand Alone Inspection
010889STMP	2300 JEFFERSON DAVIS	18	10/08/12	SMU	008275IN	008276IN	POTOMAC RIVER	46	0	38	25	- Stand Alone Inspection
010890STMP	2300 JEFFERSON DAVIS	18	10/08/12	SMU	008279IN	008275IN	POTOMAC RIVER	39	0	39	0	C.N.A.008279 TO DO A REVERSE INSPEC. - Stand Alone Inspection
007343STMP	701 N.FAIRFAX ST.	18	10/01/12	SMU	002364SMH	002363SMH	POTOMAC RIVER	0	0	0	0	REVERSE SET-UP - Merged Inspections Num
003336STMP	3640 WHEELER AVE.	21	11/06/12	SMU	000619SMH	000131IO	CAMERON RUN	70	0	0	70	RUNS UNDER PARKING LOT-WORK YARD OF FLIPPO CONST. - Stand Alone
005723STMP	3825.5 DOMINION MI.	30	04/15/13	EC	003722IN	003721IN	CAMERON RUN	70	0	0	70	- Stand Alone Inspection
005723STMP	3825.5 DOMINION MI.	30	10/26/12	SMU	003722IN	003721IN	CAMERON RUN	55	0	38	45	- Stand Alone Inspection
002708STMP	3638 DUKE ST.	60	10/25/12	SMU	001750IN	000598SMH	CAMERON RUN	42	0	42	0	LINE ADDED TO SPREAD SHEET - Stand Alone Inspection
004230STMP	99 ARELL CT.	60	10/24/12	SMU	000861SMH	000871SMH	CAMERON RUN	41	0	30	25	- Stand Alone Inspection
005722STMP	3825.5 DOMINION MI.	36	10/26/12	SMU	003721IN	000471ND	CAMERON RUN	37	0	37	0	000471ND IS A T-CONNECTION INTO SEGMENT 005721STMP -
002709STMP	CARRIAGE HOUSE CIR. AT DUKE ST.	60	10/25/12	SMU	001751IN	001750IN	CAMERON RUN	30	0	30	0	NO ADRESS GIVEN ON SPREAD SHEET - Stand Alone Inspection
004229STMP	3400 DUKE ST.	60	10/24/12	SMU	000871SMH	000861SMH	CAMERON RUN	29	0	29	0	PIPE MAKES LEFT TURN & CONNECTS 000871SMH - Stand Alone Inspection
003336STMP	3640 WHEELER AVE.	21	04/11/13	EC	000619SMH	000131IO	CAMERON RUN	19	6	0	12	- Stand Alone Inspection
004229STMA	ARELL CT.	60	04/15/13	EC	000320ND	000861SMH	CAMERON RUN	0	0	0	0	- Stand Alone Inspection
005722STMP	3825.5 DOMINION MI.	36	04/15/13	EC	003721IN	000471ND	CAMERON RUN	0	0	0	0	- Stand Alone Inspection
007847STMP	1404 PORTNER RD.	15	03/25/13	SMU	007212IN	002447SMH	CSO-PENDLETON S	42	6	36	0	- Stand Alone Inspection
007961STMP	1321 POWHATAN ST.	18	03/25/13	SMU	007215IN	007214IN	CSO-PENDLETON S	22	0	11	12	FOUND TO BE 18in NOT 15in AS SHOWN ON SPREADSHEET - Stand Alone
007848STMP	1404 PORTNER RD.	15	03/25/13	SMU	007214IN	007212IN	CSO-PENDLETON S	0	0	0	0	- Stand Alone Inspection
007151STMP	ORONOCO ST.	15	04/15/13	EC	007235IN	0001067ND	CSO-PENDLETON S	0	0	0	0	- Stand Alone Inspection

Appendix C – High Priority CMP Segments

Sorted by SCREAM Defect Severity

SCREAM CCTV Urgent Observation List

						Corrective Action Required?						
US MH	DS MH	US Basin	Street	Date	Urgent Action Required?	Struc.	Maint.	Defect Code	Defect Score	Component	Type	Severity
000290ND	000758SMH	HOLMES RUN	320 N JORDAN ST	08/30/12	yes	no	yes	POb100	100	Pipe	Obstacle	100% Area Loss
000769IN	000057IO	TAYLOR RUN	501 W.TAYLOR RUN PY.	09/26/12	yes	yes	no	PBroPe3	100	Pipe	Broken, Pieces	3 (Hole/Void Visible)
002364SMH	002363SMH	POTOMAC RIVER	701 N.FAIRFAX ST.	10/01/12	yes	yes	no	PDef4	100	Pipe	Deformation	4 (>30% Dia.)
002371SMH	005126IN	POTOMAC RIVER	402 BASHFORD LA.	10/01/12	yes	yes	no	PBroPe3	100	Pipe	Broken, Pieces	3 (Hole/Void Visible)
005426IN	002510SMH	HOOFFS RUN	2602 CREST ST	07/25/12	yes	yes	no	PBroPe3	100	Pipe	Broken, Pieces	3 (Hole/Void Visible)
002501ND	003710IN	HOLMES RUN	1600 CHAPEL HILL DR.	09/24/12	yes	yes	no	PBroPe3	96	Pipe	Broken, Pieces	3 (Hole/Void Visible)
004063IN	004040IN	BACKLICK RUN	103 S.PICKETT ST.	04/15/13	yes	yes	no	PBroPe3	96	Pipe	Broken, Pieces	3 (Hole/Void Visible)
008278IN	008301IN	POTOMAC RIVER	2300 JEFFERSON DAVIS	10/08/12	yes	yes	no	PBroPe3	95	Pipe	Broken, Pieces	3 (Hole/Void Visible)
001024SMH	000215IO	BACKLICK RUN	520 CAMERON STATION	09/28/12	no	no	yes	PDSet40	92	Pipe	Debris Settled	40% Area Loss
002276IN	002275IN	HOLMES RUN	320 N JORDAN ST	08/28/12	no	yes	no	PBroPe1	85	Pipe	Broken, Pieces	1 (Pieces Displaced)
005623IN	002635SMH	HOOFS RUN	501 RICHARDS LN.	07/17/12	no	yes	no	PBroPe1	85	Pipe	Broken, Pieces	1 (Pieces Displaced)
000123IO	000125IO	STRAWBERRY RUN	3731 DUKE ST.	04/11/13	no	yes	no	PCor2	80	Pipe	Corrosion	2 (Aggr. Visible)
003298IN	001073SMH	HOLMES RUN	633 N.RIPLEY ST.	09/25/12	no	yes	no	PCor2	80	Pipe	Corrosion	2 (Aggr. Visible)
000769IN	000057IO	TAYLOR RUN	501 W.TAYLOR RUN PY.	09/26/12	no	yes	no	JDis3	78	Joint	Displaced	3 (>1.5 Pipe Thickness)
001024SMH	000215IO	BACKLICK RUN	520 CAMERON STATION	09/28/12	no	yes	no	PCor2	77	Pipe	Corrosion	2 (Aggr. Visible)
001222SMH	000266IO	HOLMES RUN	332 N.PICKETT ST.	09/24/12	no	yes	no	PCor2	74	Pipe	Corrosion	2 (Aggr. Visible)
002364SMH	002363SMH	POTOMAC RIVER	701 N.FAIRFAX ST.	10/01/12	no	yes	no	JO3	70	Joint	Open	3 (> 1.5 Pipe Thickness)
002371SMH	005126IN	POTOMAC RIVER	402 BASHFORD LA.	10/01/12	no	yes	no	JO2	70	Joint	Open	2 (1-1.5 Pipe Thickness)
003722IN	003721IN	CAMERON RUN	3825.5 DOMINION MI.	04/15/13	no	yes	no	PDef3	70	Pipe	Deformation	3 (11-30% Dia.)
000541IO	007752IN	HOOFS RUN	601 COMMONWEALTH AVE.	07/17/12	no	no	yes	PDep30	60	Pipe	Deposits	30% Area Loss
002371SMH	005126IN	POTOMAC RIVER	402 BASHFORD LA.	10/01/12	no	no	yes	PDSet30	60	Pipe	Debris Settled	30% Area Loss
007990IN	007989IN	HOOFS RUN	426 E.MONROE AVE.	07/20/12	no	no	yes	PDep30	60	Pipe	Deposits	30% Area Loss
003268SMH	002500ND	HOOFFS RUN	1501 CAMERON ST	07/26/12	no	yes	no	PDef3	52	Pipe	Deformation	3 (11-30% Dia.)

*Defects are grouped together by Defect code, continuous defect lengths are added or point defects are counted when scored. Note that this occurs across merged inspections. See the CCTV inspection for more information.

						Corrective Action Required?						
US MH	DS MH	US Basin	Street	Date	Urgent Action Required?	Struc.	Maint.	Defect Code	Defect Score	Component	Type	Severity
003298IN	001073SMH	HOLMES RUN	633 N.RIPLEY ST.	09/25/12	no	yes	no	JO2	44	Joint	Open	2 (1-1.5 Pipe Thickness)
001750IN	000598SMH	CAMERON RUN	3638 DUKE ST.	10/25/12	no	no	yes	PDS20	42	Pipe	Debris Settled	20% Area Loss
002390SMH	002391SMH	POTOMAC RIVER	1000 N.FAIRFAX ST.	04/15/13	no	no	yes	PR20	42	Pipe	Roots	20% Area Loss
003711IN	003710IN	HOLMES RUN	1600 CHAPEL RD	09/24/12	no	no	yes	PDS20	42	Pipe	Debris Settled	20% Area Loss
007990IN	007989IN	HOOFS RUN	426 E.MONROE AVE.	07/20/12	no	no	yes	PD20	42	Pipe	Deposits	20% Area Loss
007824IN	003054SMH	HOOFS RUN	1200 N.FAYETTE ST.	07/18/12	no	yes	no	JDis2	41	Joint	Displaced	2 (1-1.5 Pipe Thickness)
007149IN	009500IN	FOUR MILE RUN	3601 RUSSELL RD	07/27/12	no	no	yes	PDS20	39	Pipe	Debris Settled	20% Area Loss
008279IN	008275IN	POTOMAC RIVER	2300 JEFFERSON DAVIS	10/08/12	no	no	yes	PDS20	39	Pipe	Debris Settled	20% Area Loss
001663SMH	004921IN	HOOFS RUN	1416 DUKE ST	07/25/12	no	yes	no	PDef2	38	Pipe	Deformation	2 (6-10% Dia.)
002501ND	003710IN	HOLMES RUN	1600 CHAPEL HILL DR.	09/24/12	no	no	yes	PDS20	29	Pipe	Debris Settled	20% Area Loss
007118IN	000429IO	FOUR MILE RUN	3600 COMMONWEALTH AV	07/27/12	no	yes	no	PDef2	29	Pipe	Deformation	2 (6-10% Dia.)
008277IN	008278IN	POTOMAC RIVER	2300 JEFFERSON DAVIS	10/08/12	no	yes	no	JO2	28	Joint	Open	2 (1-1.5 Pipe Thickness)
000541IO	007752IN	HOOFS RUN	601 COMMONWEALTH AVE.	07/17/12	no	yes	no	JO2	25	Joint	Open	2 (1-1.5 Pipe Thickness)
004063IN	004040IN	BACKLICK RUN	103 S.PICKETT ST.	04/15/13	no	yes	no	LPro2	25	Lateral	Protruding	2 (21-50% Dia.)
005623IN	002635SMH	HOOFS RUN	501 RICHARDS LN.	07/17/12	no	yes	no	JO2	25	Joint	Open	2 (1-1.5 Pipe Thickness)
008276IN	008277IN	POTOMAC RIVER	2300 JEFFERSON DAVIS	10/08/12	no	yes	no	JO2	25	Joint	Open	2 (1-1.5 Pipe Thickness)
008278IN	008301IN	POTOMAC RIVER	2300 JEFFERSON DAVIS	10/08/12	no	yes	no	JO2	25	Joint	Open	2 (1-1.5 Pipe Thickness)
000450CB	002539SMH	HOOFS RUN	2801 VALLEY DR.	07/20/12	no	yes	no	JO2	24	Joint	Open	2 (1-1.5 Pipe Thickness)
002633SMH	004500SMH	HOOFS RUN	501 RICHARDS LN.	07/17/12	no	yes	no	JO2	24	Joint	Open	2 (1-1.5 Pipe Thickness)
002648SMH	000431CB	HOOFS RUN	2316 VALLEY DR.	07/17/12	no	yes	no	JO2	22	Joint	Open	2 (1-1.5 Pipe Thickness)
002371SMH	005126IN	POTOMAC RIVER	402 BASHFORD LA.	10/01/12	no	no	yes	PDS20	21	Pipe	Debris Settled	20% Area Loss
007824IN	003054SMH	HOOFS RUN	1200 N.FAYETTE ST.	07/18/12	no	yes	no	JO2	21	Joint	Open	2 (1-1.5 Pipe Thickness)
002634SMH	002636SMH	HOOFS RUN	501 RICHARDS LA	07/26/12	no	no	yes	PDS30	20	Pipe	Debris Settled	30% Area Loss
002633SMH	004500SMH	HOOFS RUN	501 RICHARDS LN.	07/17/12	no	no	yes	POb20	7	Pipe	Obstacle	20% Area Loss
007118IN	000429IO	FOUR MILE RUN	3600 COMMONWEALTH AV	07/27/12	no	no	yes	POb30	7	Pipe	Obstacle	30% Area Loss

*Defects are grouped together by Defect code, continuous defect lengths are added or point defects are counted when scored. Note that this occurs across merged inspections. See the CCTV inspection for more information.

Appendix D – Comprehensive Table of Observed Pipe Defects

Appendix E – Summary of CMP Segments Not Inspected

Summary of CMP Segments Not Inspected

Pipe ID	Shed	Length (ft)	US Structure	DS Structure	Comments	Reason Not Inspected
000935STMP	Strawberry Run	184	001811IN	001812IN	Needs off-road access; Heavy Cleaning Required	Debris
001456STMP	Four Mile Run	34	000263IN	000104SMH	Upstream manhole is backed up real bad. Needs traffic control	Debris
002290STMP	Undetermined	21	000039CP	000040CP	Unable to survey. Large amount of debris and rocks.	Debris
002693STMP	Strawberry Run	172	001768IN	000122IO	Pipe requires Heavy Cln	Debris
002900STMP	Strawberry Run	352	002889IN	002870IN	002889IN Does not exist or Asphalted over. Dwnstream requires 25% full large gravel. Requires Heavy Cln	Debris
003306STMP	Strawberry Run	83	001799IN	000609SMH	Needs Heavy Cln - 30% Sand	Debris
003949STMP	Taylor Run	110	002383IN	002391IN	Pipe requires Heavy Cln	Debris
004119STMP	Cameron Run	245	000238IO	001182SMH	High water level/ Large Debris	Debris
004207STMP	Cameron Run	261	000174IO	004458IN	Pipes requires heavy cleaning	Debris
004804STMP	Backlick Run	46	001025SMH	001024SMH	Pipe requires Heavy Cln	Debris
004805STMP	Backlick Run	16	001024SMH	000215IO	MSA; Pipe requires heavy cleaning.	Debris
005500STMP	Holmes Run	137	001391SMH	000557ND	Heavy cleaning required/Cannot access	Debris
005703STMP	Cameron Run	351	001182SMH	001190SMH	high water level/ Large Debris	Debris
005718STMP	Cameron Run	140	001190SMH	003714IN	High water level/ Large Debris	Debris
005727STMP	Strawberry Run	642	003714IN	000245IO	Pipes requires heavy cleaning	Debris
007064STMP	Potomac River	27	000117CP	000116CP	Unable to CCTV 30% debris	Debris
007065STMP	Potomac River	286	002371SMH	005126IN	MSA'd - 30% Debris	Debris
007263STMP	Hooff's Run (Timber Branch)	64	000086CP	000087CP	Needs heavy Cln.	Debris
007660STMP	Potomac River	48	000115CP	000114CP	Unable to CCTV 30% debris	Debris
007826STMP	CSO - Pendleton Street	24	002435SMH	002436SMH	Holding large amount of water/mud/trash; Approx. 2 ft thick. SWM facility?	Debris
007827STMP	CSO - Pendleton Street	18	002436SMH	002437SMH	Holding large amount of water/mud/trash; Approx. 2 ft thick. SWM facility?	Debris
007832STMP	CSO - Pendleton Street	19	002442SMH	002441SMH	Holding large amount of water/mud/trash; Approx. 2 ft thick. SWM facility?	Debris
008604STMP	Hooff's Run (Timber Branch)	185	007562IN	007561IN	Needs heavy Cln.	Debris
009114STMP	Hooff's Run (Timber Branch)	59	007667IN	000517IO	Needs heavy Cln.	Debris
007343STMP	Potomac River	34	002364SMH	002363SMH	MSA'd - Steep change in slope; downstream pipe end collapsed	Debris
007151STMP	CSO - Pendleton Street	40	007235IN	0001067ND	No access at 0001067ND. Heavy Debris.	Debris
001846STMP	Four Mile Run	61	000966IN	000329SMH	Debris.	Debris
007658STMP	Potomac River	9	005125IN	002371SMH	Does not exist	DNE
011404STMP	Four Mile Run	24	006746IN	000259CB	Line is not there. It is blocked/concreted off.	DNE
007451STMP	Potomac River	145	005353IN	005355IN	Unable to CCTV Pipe Submerged	No Access

Summary of CMP Segments Not Inspected

Pipe ID	Shed	Length (ft)	US Structure	DS Structure	Comments	Reason Not Inspected
007628STMP	Potomac River	266	002352SMH	000469IO	Unable to CCTV Pipe Submerged	No Access
008041STMP	Potomac River	32	005355IN	003006SMH	Unable to CCTV Pipe Submerged	No Access
002723STMP	Cameron Run	111	000152IO	000151IO	Cannot access	No Access
004401STMP	Holmes Run	53	000504ND	003958IN	Cannot access	No Access
005710STMP	Strawberry Run	22	003696IN	000472ND	Upstrm grates welded shut. No dwnstrm access, direct tie-in to 36", no mh or grate.	No Access
005711STMP	Strawberry Run	6	003697IN	000464ND	Upstrm grates welded shut. No dwnstrm access, direct tie-in to 36", no mh or grate.	No Access
005712STMP	Strawberry Run	60	003698IN	000465ND	Upstrm grates welded shut. No dwnstrm access, direct tie-in to 36", no mh or grate.	No Access
005713STMP	Strawberry Run	26	003713IN	000466ND	Upstrm grates welded shut. No dwnstrm access, direct tie-in to 36", no mh or grate.	No Access
005714STMP	Cameron Run	242	000063CP	000061CP	Cannot access. High Water Level	No Access
005715STMP	Cameron Run	261	000064CP	000062CP	Cannot access. High Water Level	No Access
005721STMP	Cameron Run	258	000469ND	000065CP	Cannot Access; Dwnstrm submerged. No upstrm access.	No Access
005728STMP	Strawberry Run	73	003695IN	003696IN	Upstrm grates welded shut. No dwnstrm access, direct tie-in to 36", no mh or grate.	No Access
005810STMP	Cameron Run	166	000479ND	000257IO	Cannot access	No Access
006178STMP	Four Mile Run	246	001421SMH	004222IN	MSA. Pipe is blocked off. Cannot access	No Access
007066STMP	Potomac River	78	005126IN	0001027ND	Cannot Access	No Access
007097STMP	Potomac River	9	005236IN	002389SMH	Cannot Access	No Access
007335STMP	Hooff's Run (Timber Branch)	65	000088CP	000093CP	Road Closed. No Access. Also water is 2'-4' deep.	No Access
007336STMP	Hooff's Run (Timber Branch)	62	000089CP	000092CP	Road Closed. No Access. Also water is 2'-4' deep.	No Access
007337STMP	Hooff's Run (Timber Branch)	65	000090CP	000091CP	Road Closed. No Access. Also water is 2'-4' deep.	No Access
007659STMP	Potomac River	29	000113CP	001026ND	Cannot Access	No Access
007854STMP	Potomac River	87	005391IN	001099ND	Cannot Access storm grate concreted in place	No Access
007959STMP	CSO - Pendleton Street	20	002457SMH	002456SMH	Holding large amount of water. Diameter greater than 12".	No Access
008457STMP	Hooff's Run (Timber Branch)	152	005704IN	005703IN	No Access.	No Access
010100STMP	Hooff's Run (Timber Branch)	16	003050SMH	003049SMH	Pipe is full of water	No Access
010101STMP	Hooff's Run (Timber Branch)	72	003048SMH	003049SMH	Pipe is full of water	No Access
006675STMP	Four Mile Run	116	000011CD	001486SMH	Pipe located in easement - houses too tight for access. Pipe is clean.	No Access
006695STMP	Four Mile Run	59	001486SMH	001487SMH	Pipe located in easement - houses too tight for access. Pipe is clean.	No Access
001319STMP	Four Mile Run	426	000089IO	000390SMH	Cannot locate line	Not Found
002735STMP	Holmes Run	74	000046CP	000045CP	Cannot locate	Not Found
007176STMP	Potomac River	76	007249IN	000478IO	Cannot Locate Possibly Submerged	Not Found

Summary of CMP Segments Not Inspected

Pipe ID	Shed	Length (ft)	US Structure	DS Structure	Comments	Reason Not Inspected
007178STMP	Potomac River	41	007250IN	007252IN	Cannot Locate	Not Found
009643STMP	Four Mile Run	10	006954IN	001238ND	Cannot locate line	Not Found
011527STMP	Potomac River	63	000103CP	000104CP	Cannot locate Site under construction	Not Found
011981STMP	Potomac River	36	000106CP	000105CP	Cannot locate Site under construction	Not Found
001134STMP	Four Mile Run	20	000015CP	000016CP	Pipe is Cast Iron	Non-CMP
001084STMP	Taylor Run	26	000033CP	000034CP	Concrete culvert	Non-CMP
001086STMP	Taylor Run	13	000037CP	000038CP	Concrete culvert	Non-CMP
001255STMP	Taylor Run	293	000815SMH	000816SMH	Pipe is concrete	Non-CMP
001256STMP	Taylor Run	74	000816SMH	000172IO	Pipe is concrete	Non-CMP
001623STMP	Four Mile Run	129	000345SMH	001002IN	Line is black plastic pipe	Non-CMP
001830STMP	Four Mile Run	36	000324SMH	000957IN	Pipe is concrete	Non-CMP
001831STMP	Four Mile Run	131	000325SMH	000324SMH	Pipe is concrete	Non-CMP
001832STMP	Four Mile Run	86	000131ND	000325SMH	Pipe is concrete	Non-CMP
001880STMP	Four Mile Run	58	000354SMH	000360SMH	Line is black plastic pipe	Non-CMP
001920STMP	Four Mile Run	34	000360SMH	000085IO	Line is black plastic pipe	Non-CMP
003285STMP	Strawberry Run	63	000603SMH	000124IO	Pipe is concrete, debris.	Non-CMP
004802STMP	Backlick Run	31	001026SMH	001025SMH	Pipe is concrete	Non-CMP
005497STMP	Backlick Run	555	004029IN	001315SMH	Pipe is concrete	Non-CMP
007274STMP	Hooff's Run (Timber Branch)	50	004472IN	004474IN	Pipe is concrete	Non-CMP
007631STMP	Potomac River	99	001019ND	002352SMH	Pipe is concrete	Non-CMP
007865STMP	Potomac River	67	005336IN	005335IN	Pipe is concrete, debris.	Non-CMP
008976STMP	Hooff's Run (Timber Branch)	30	003384SMH	000846ND	Pipe is concrete	Non-CMP
008978STMP	Hooff's Run (Timber Branch)	152	003385SMH	003384SMH	Pipe is concrete	Non-CMP
009737STMP	Hooff's Run (Timber Branch)	97	003383SMH	003384SMH	Pipe is concrete	Non-CMP
010120STMP	CSO - Pendleton Street	75	007830IN	000877ND	Line appears to be concrete and does not run directly across road as map shows.	Non-CMP
012017STMP	Hooff's Run (Timber Branch)	62	001142ND	001945SMH	Pipe is concrete	Non-CMP
012739STMP	Four Mile Run	307	007117IN	000428IO	Pipe is concrete	Non-CMP

Appendix F – Original Inspection Reports

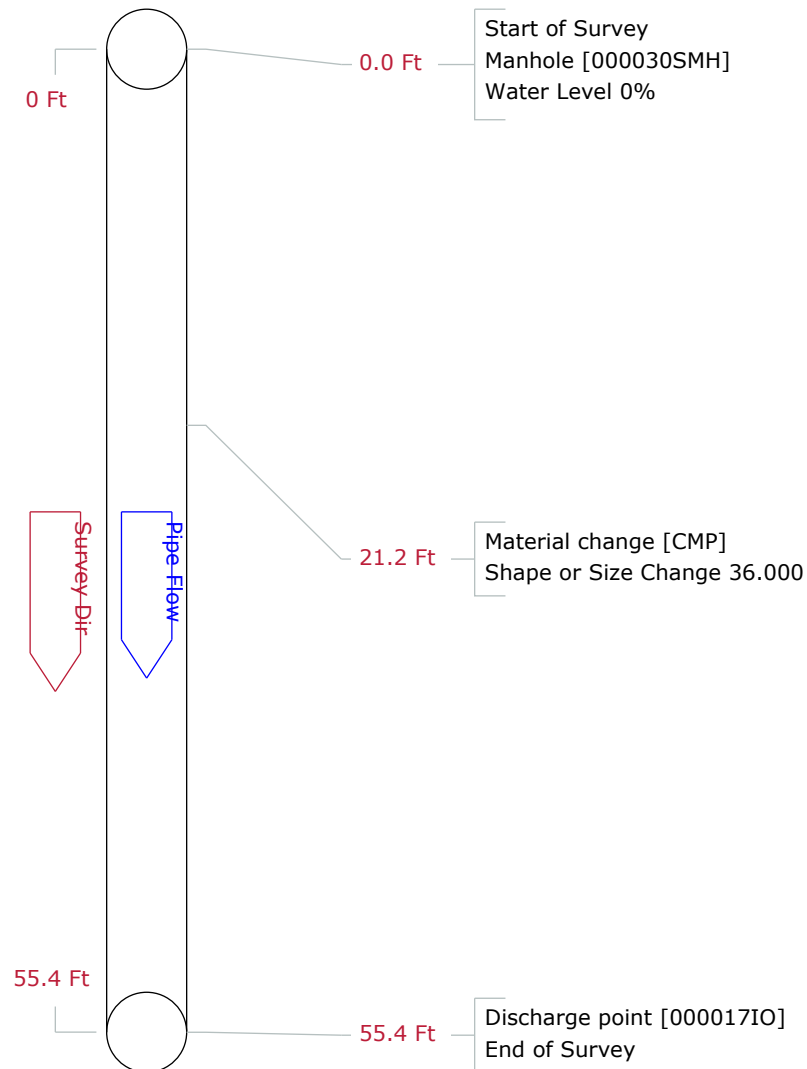
Provided by Video Pipe Services (VPS)

Sorted by Pipe Segment ID

Pipe Graphic Report of PSR 000198STMP

for CH2M HILL

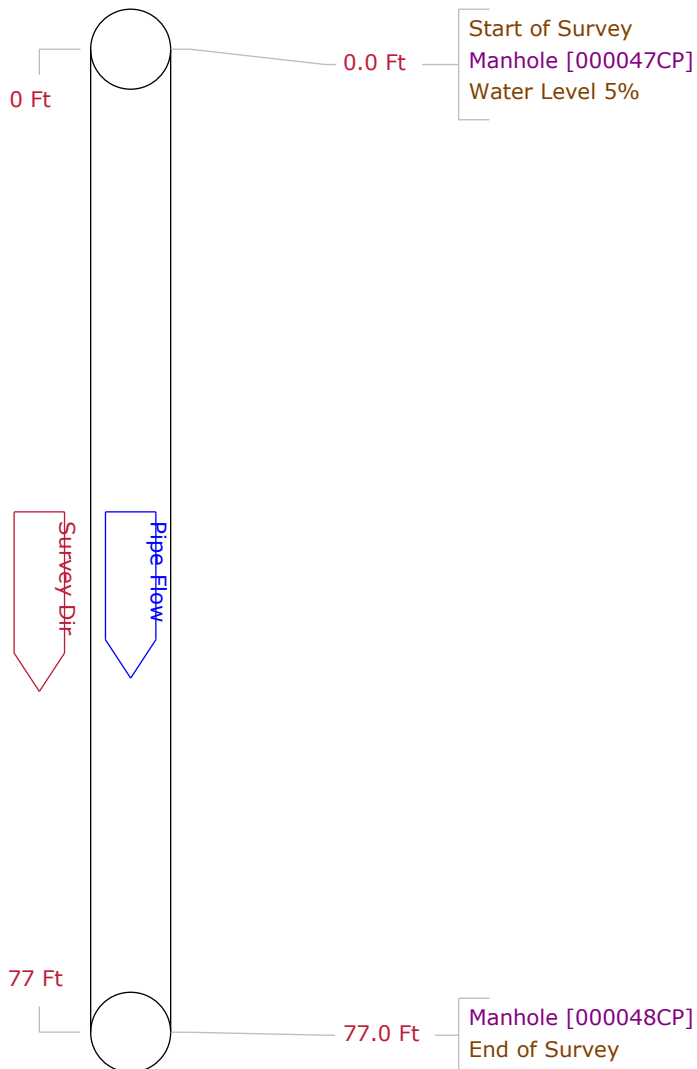
Setup	4	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA VA.
Drainage	TAYLOR RUN	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/11	Time	13:26	Street	KING ST.
City	ALEXANDRIA, VA	Further location details	PIPE STARTS OUT AS RCP BUT CHANGES TO CMP				
Start	000030SMH	Rim to invert	8.50	Grade to invert		Rim to grade	Ft
Finish	000017IO	Rim to invert	2.50	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2MH 4-11
Shape	Circular	Height	30	Width	ins	Preclean	N
Material	Reinforced Concrete Pipe	Joint length	Ft	Total length	22.6	Ft	Length Surveyed 55.40
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location				Sidewalk			
Project				CCTV_20130407_20130413_EC			
Northing				Easting			
Coordinate System				GPS Accuracy			
				Work Order -			



Pipe Graphic Report of PSR 004613STMP

for CH2MHILL

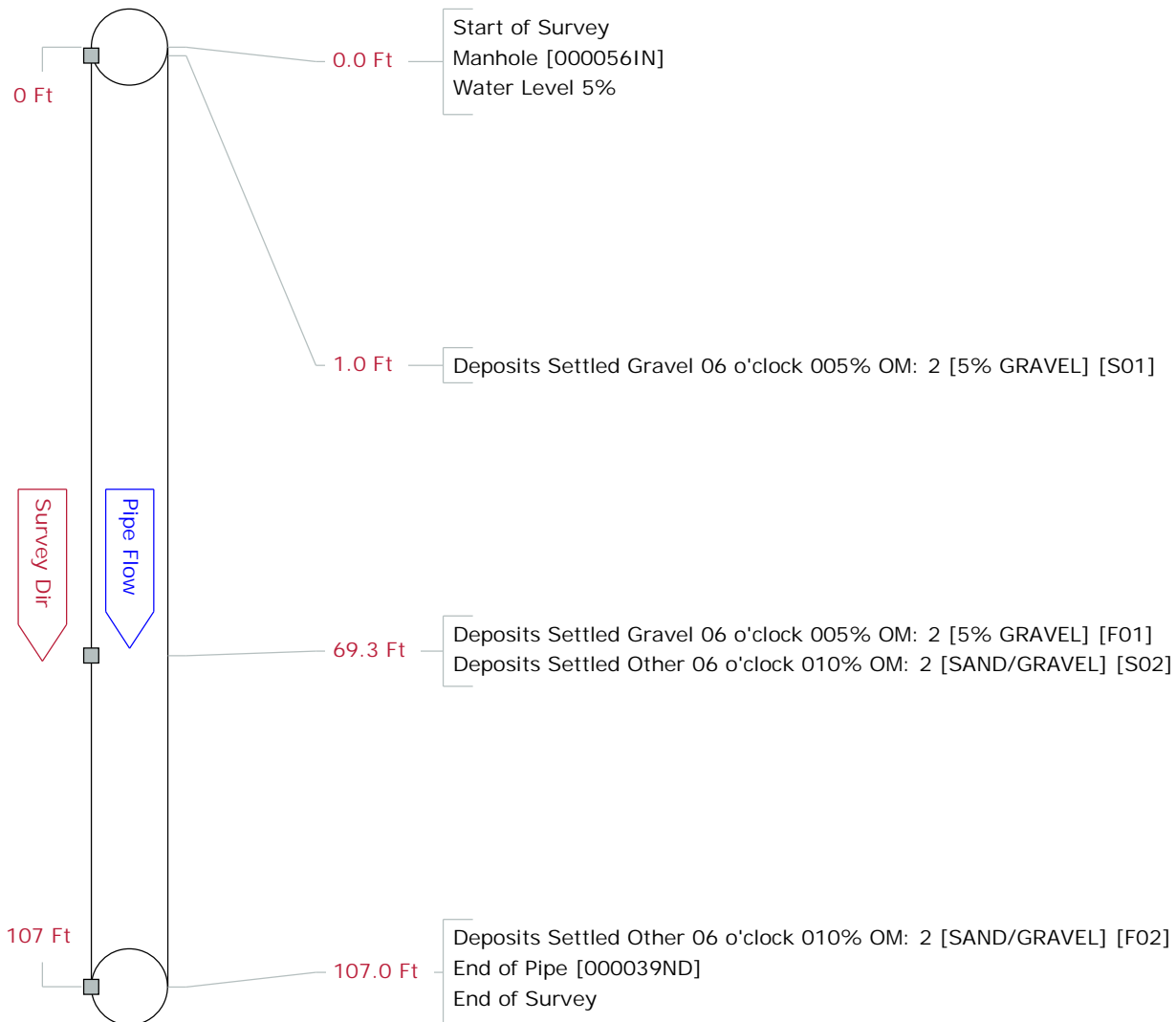
Setup	13	Surveyor	GTT	Certificate #	U-207-4469	System Owner	CITY OF ALEXANDRIA
Drainage		Survey Customer					
P/O #		Date	2012/08/31	Time	10:34	Street	5501 SANGER AVE
City	ALEXANDRIA	Further location details					
Start	000047CP	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	000048CP	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control		Media No	1
Shape	Arched	Height	4	Width	4 ins	Preclean	H
Material	Corrugated Metal Pipe	Joint length		Ft	Total length		Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose				Cat			
Additional info						Structural	O&M
Location	Light Highway					Miscellaneous	Hydraulic
Project	CASSA_CCTV_20120826_20120901_DB					Constructional	
Northing		Easting		Elevation		Work Order	
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 000178STMP

for CH2M HILL

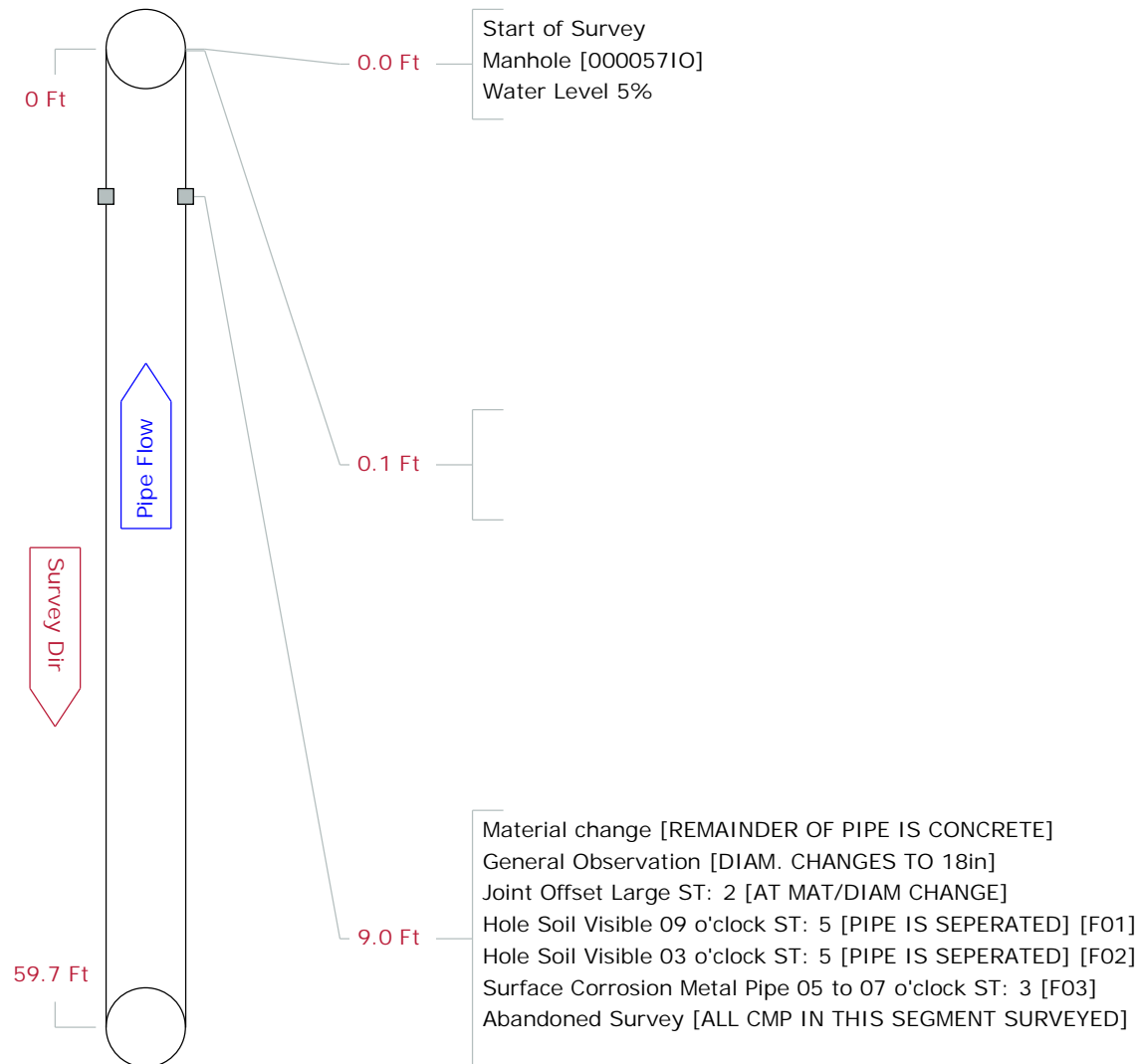
Setup	25	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	TAYLOR RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/09/26	Time	7:48	Street	2735 FRANKLIN CT.
City	ALEXANDRIA	Further location details (INDEX TILE) D-7b					
Start	000056IN	Rim to invert	9.50	Grade to invert		Rim to grade	Ft
Finish	000039ND	Rim to invert	0.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-9-26
Shape	Circular	Height	42	Width	ins	Preclean	J
						Year Cleaned	2012/09/26
Material	Corrugated Metal Pipe	Joint length	18.0	Ft	Total length	71.0	Ft
						Length Surveyed	107.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location	Parking Lot						
Project	CASSCA_CCTV_20120923_20120929_SMU					Work Order	
Northing	Easting		Elevation				
Coordinate System			GPS Accuracy				



Pipe Graphic Report of PSR 000822STMP

for CH2M HILL

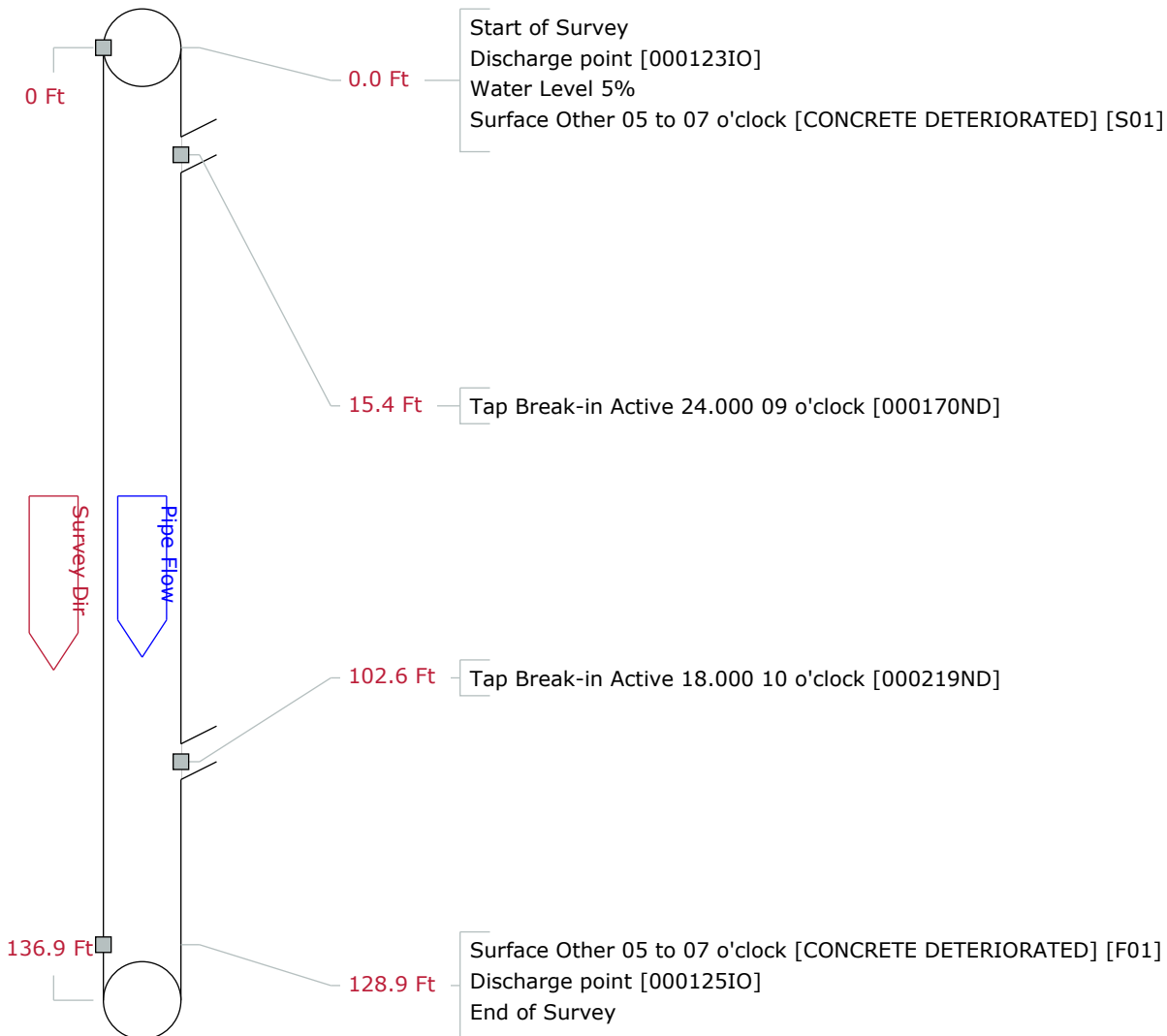
Setup	26	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	TAYLOR RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/09/26	Time	11:06	Street	501 W.TAYLOR RUN PY.
City	ALEXANDRIA	Further location details (INDEX TILE) F-8d					
Start	000057IO	Rim to invert	0.00	Grade to invert		Rim to grade	Ft
Finish	000769IN	Rim to invert	4.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-9-26
Shape	Circular	Height	24	Width	ins	Preclean	J
						Year Cleaned	2012/09/26
Material	Corrugated Metal Pipe	Joint length	12.0	Ft	Total length	59.7	Ft
						Length Surveyed	09.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info	MAJORITY OF PIPE SEGMENT IS 18in CONCRETE					Work Order	
Location	Light Highway						
Project	CASSCA_CCTV_20120923_20120929_SMU						
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 003268STMP

for CH2M HILL

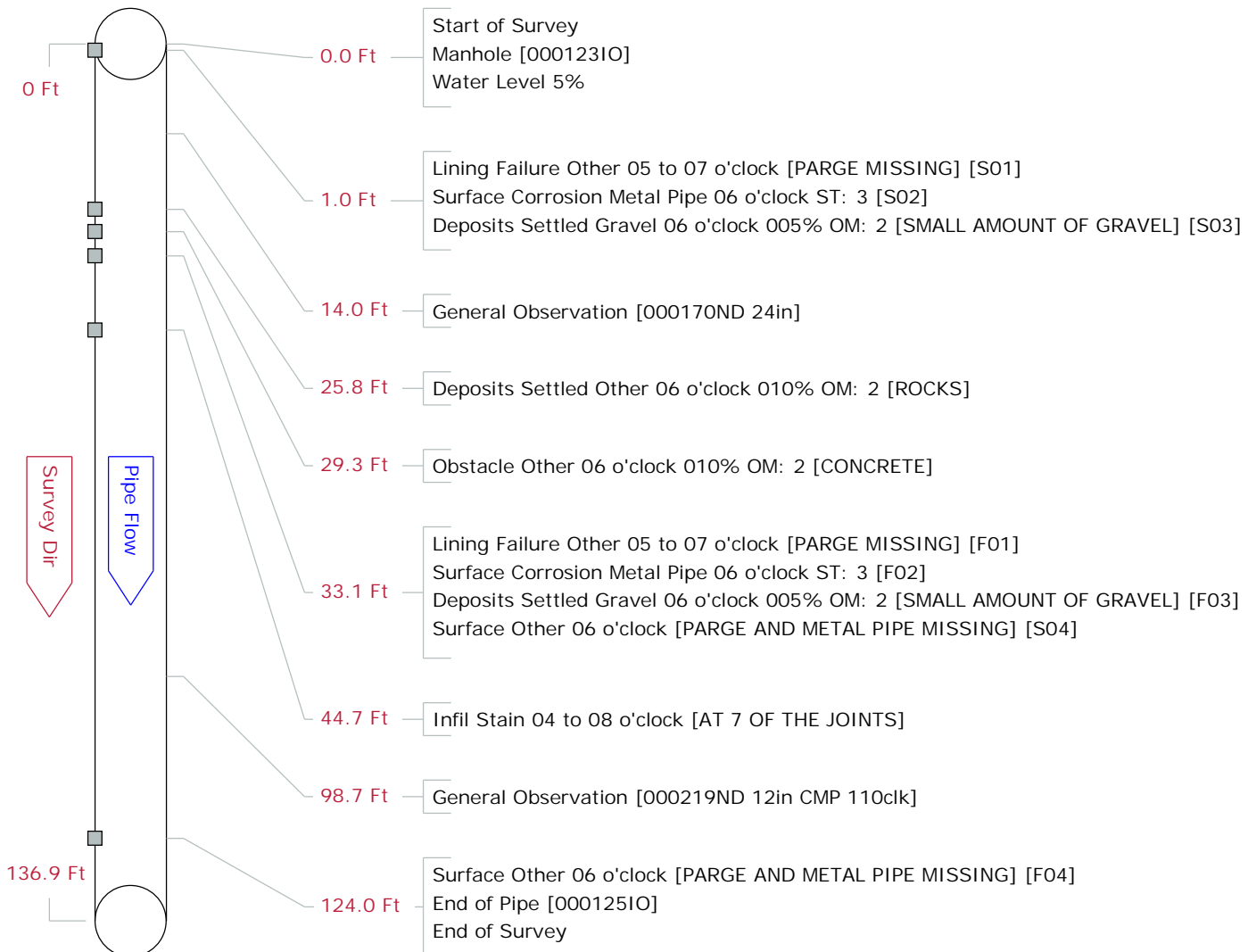
Setup	1	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA VA.
Drainage	STRAWBERRY'Survey Customer			CH2M HILL			
P/O #	-	Date	2013/04/11	Time	8:31	Street	DUKE ST (ACCESS RD)
City	ALEXANDRIA, VA		Further location details				
Start	000123IO		Rim to invert	8.80	Grade to invert	Rim to grade	Ft
Finish	000125IO		Rim to invert	7.00	Grade to invert	Rim to grade	Ft
Use	Stormwater		Direction	Downstream	Flow control	Not Controlled	Media No
Shape	Circular		Height	84	Width	ins	Preclean N
Material	Corrugated Metal Pipe		Joint length	Ft	Total length	136.9	Ft
Lining			Year laid		Year rehabilitated	Weather	Dry
Purpose	Maintenance Related		Cat				
Additional info							
Location	Easement/Right of Way						
Project	CCTV_20130407_20130413_EC					Work Order -	
Northing			Easting			Elevation	
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 003268STMP

for CH2M HILL

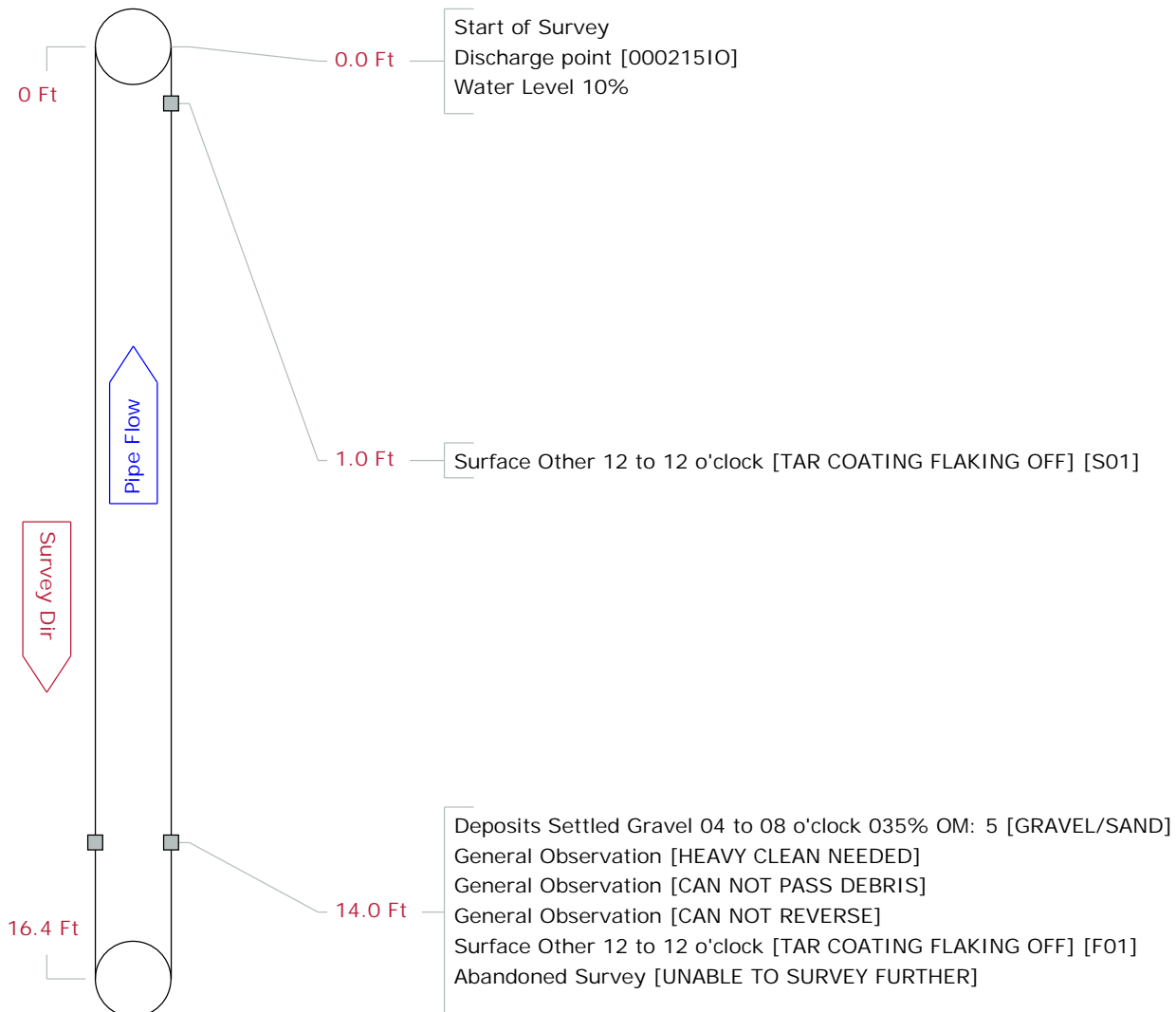
Setup	19	Surveyor	SMU	Certificate #	U-809-9223		System Owner	CITY OF ALEXANDRIA			
Drainage	STRAWBERR'			Survey Customer	CH2M HILL						
P/O #		Date	2012/10/11	Time	10:03	Street	3731 DUKE ST.				
City	ALEXANDRIA			Further location details (INDEX TILE) G-6a PIPE CROSSES UNDER DUKE ST.							
Start	000123IO			Rim to invert	0.00	Grade to invert		Rim to grade	Ft		
Finish	000125IO			Rim to invert	0.00	Grade to invert		Rim to grade	Ft		
Use	Stormwater			Direction	Downstream	Flow control	Not Controlled		Media No	CH2M-10-11	
Shape	Circular			Height	84	Width	ins	Preclean	N	Year Cleaned	
Material	Corrugated Metal Pipe			Joint length	2.0	Ft	Total length	136.9	Ft	Length Surveyed	124.00
Lining				Year laid			Year rehabilitated			Weather	Dry
Purpose	Maintenance Related					Cat					
Additional info	CLEANING NOT NECESSARY,,BOTTOM HALF OF PIPE PARGED										
Location	Light Highway										
Project	CASSCA_CCTV_20121007-20121013_SMU						Work Order				
Northing				Easting				Elevation			
Coordinate System							GPS Accuracy				



Pipe Graphic Report of PSR 004805STMP

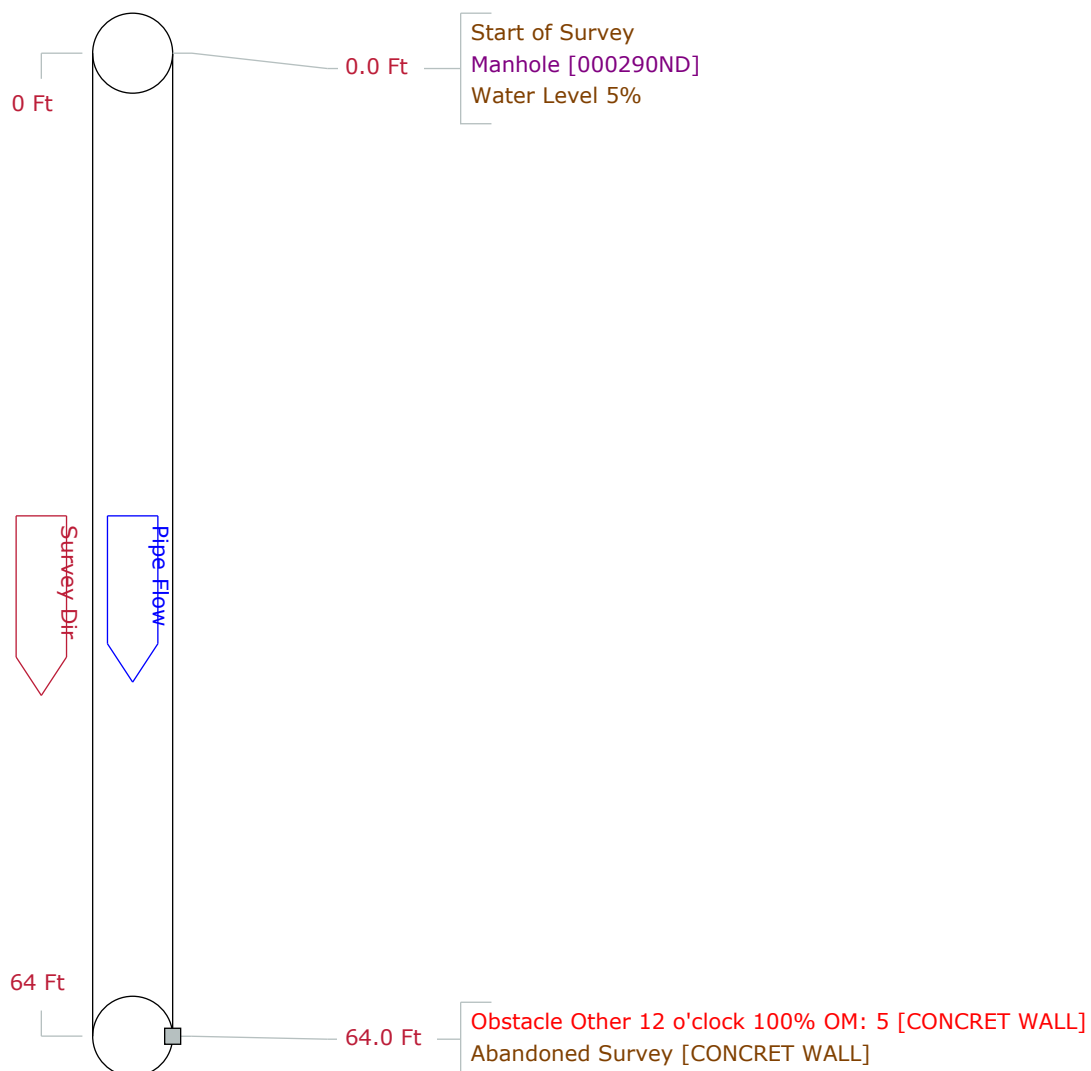
for CH2M HILL

Setup	9	Surveyor	SMU	Certificate #	U-809-9223		System Owner	CITY OF ALEXANDRIA			
Drainage	BACKLICK RU			Survey Customer	CH2M HILL						
P/O #		Date	2012/09/28	Time	7:49	Street	520 CAMERON STATION				
City	ALEXANDRIA		Further location details (INDEX TILE) H-2b								
Start	000215IO			Rim to invert	0.00	Grade to invert		Rim to grade	Ft		
Finish	001024SMH			Rim to invert	6.70	Grade to invert		Rim to grade	Ft		
Use	Stormwater			Direction	Upstream	Flow control	Not Controlled		Media No	CH2M-9-28	
Shape	Circular			Height	48	Width	ins	Preclean	J	Year Cleaned	2012/09/28
Material	Corrugated Metal Pipe			Joint length	12.0	Ft	Total length	16.4	Ft	Length Surveyed	14.00
Lining				Year laid			Year rehabilitated			Weather	Damp
Purpose	Maintenance Related			Cat							
Additional info	PIPE HAS LARGE AMOUNTS OF SAND&GRAVEL										
Location	Easement/Right of Way										
Project	CASSCA_CCTV_20120923_20120929_SMU										
Northing				Easting				Work Order			
Coordinate System							Elevation				
							GPS Accuracy				



Pipe Graphic Report of PSR 000290ND P for CH2MHILL

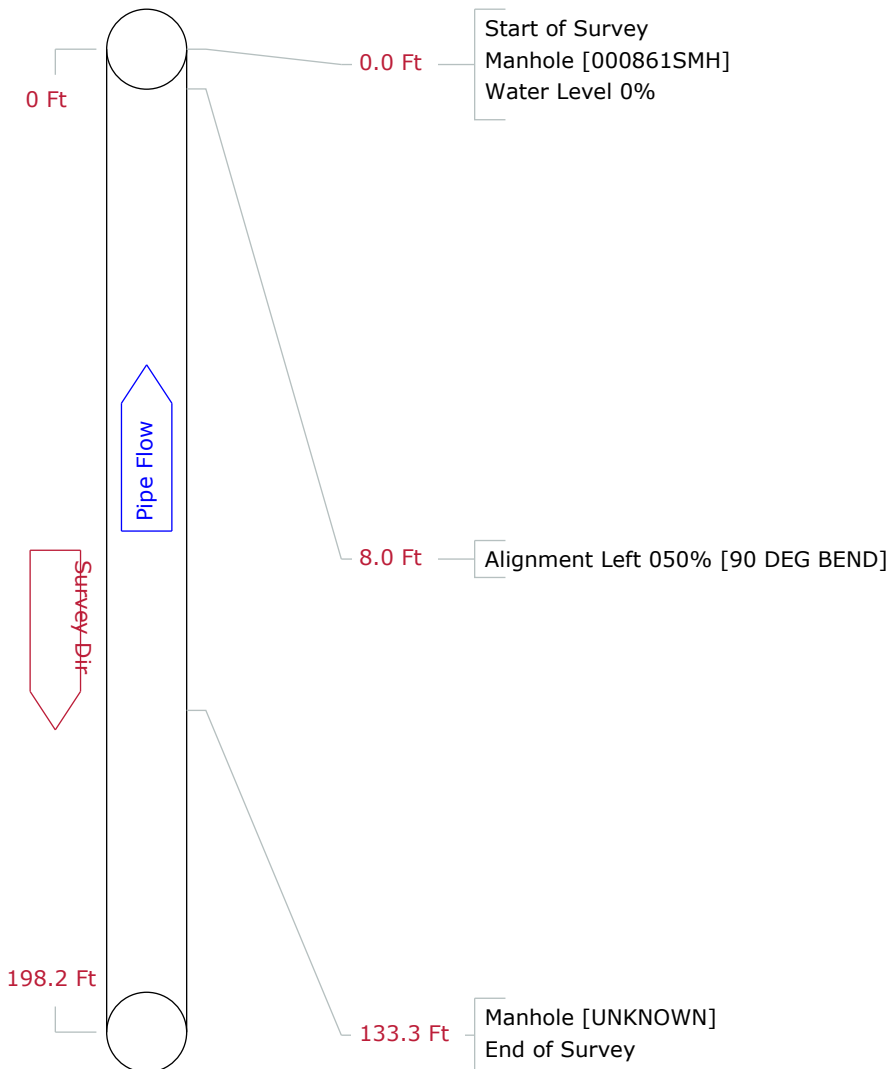
Setup 11	Surveyor GTT	Certificate #	U-207-4469	System Owner	CITY OF ALEXANDRIA			
Drainage	Survey Customer							
P/O #	Date	2012/08/30	Time	12:32	Street	320 N JORDAN ST		
City	ALEXANDRIA	Further location details						
Start	000290ND	Rim to invert	Grade to invert	Rim to grade	Ft			
Finish	000758SMH	Rim to invert	Grade to invert	Rim to grade	Ft			
Use	Stormwater	Direction	Downstream	Flow control	Media No	1		
Shape	Circular	Height	48	Width	ins	Preclean H	Year Cleaned	2012/08/30
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	Ft	Length Surveyed	64.00	
Lining		Year laid	Year rehabilitated	Weather	Dry			
Purpose		Cat						
Additional info				Structural	O&M	Constructional		
Location	Light Highway	Miscellaneous		Hydraulic				
Project	CASSA_CCTV_20120826_20120901_DB	Work Order						
Northing		Easting		Elevation				
Coordinate System		GPS Accuracy						



Pipe Graphic Report of PSR 004229STMA

for CH2M HILL

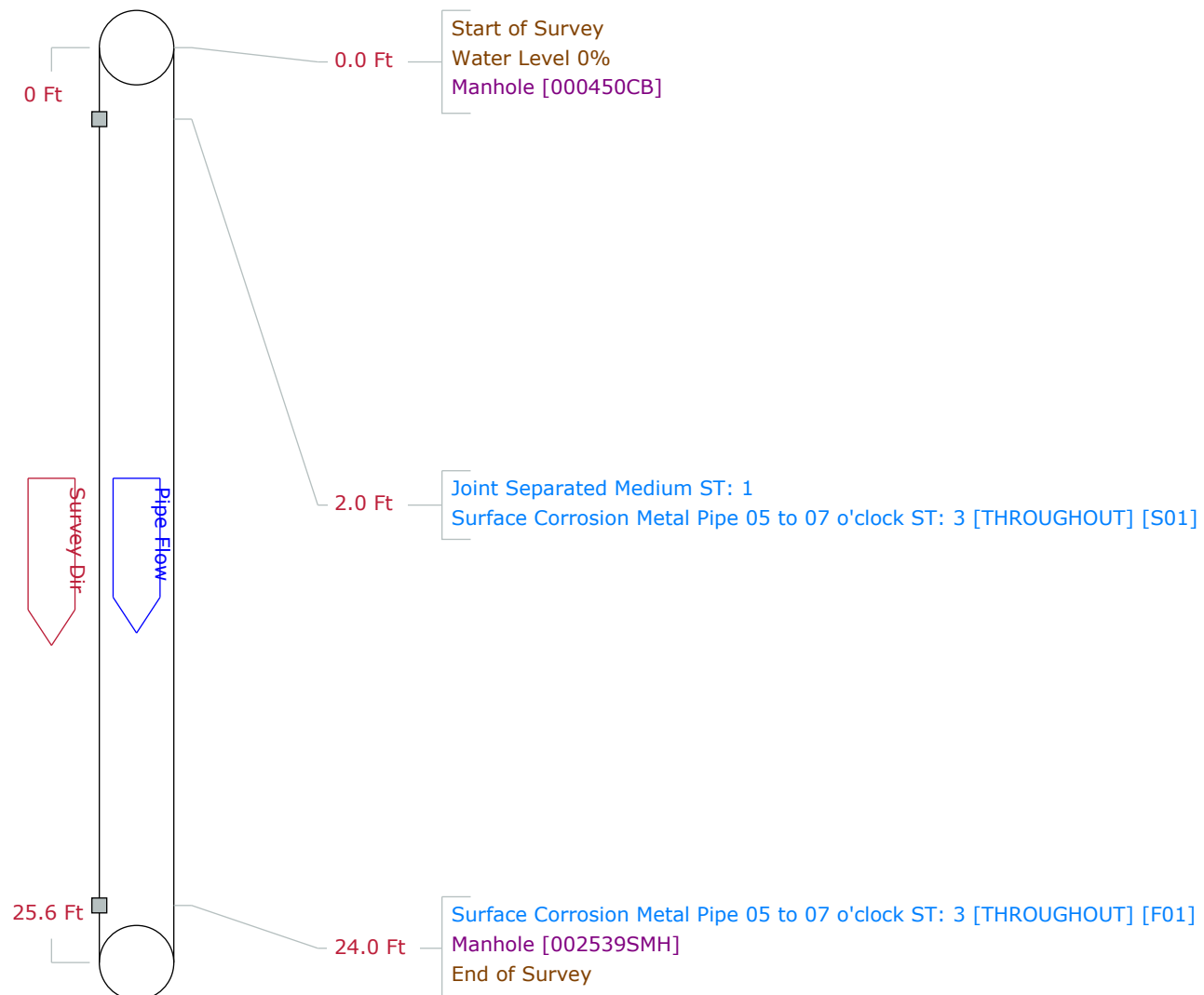
Setup	15	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA			
Drainage	CAMERON RL Survey Customer			CH2M HILL						
P/O #	-	Date	2013/04/15	Time	12:50	Street	ARELL CT.			
City	ALEXANDRIA			Further location details						
Start	000861SMH			Rim to invert	11.50	Grade to invert	Rim to grade	Ft		
Finish	000320ND			Rim to invert		Grade to invert	Rim to grade	Ft		
Use	Stormwater			Direction	Upstream	Flow control	Not Controlled	Media No	CH2MH 4-15	
Shape	Circular			Height	60	Width	ins	Preclean	N	Year Cleaned
Material	Corrugated Metal Pipe			Joint length	Ft	Total length	198.2	Ft	Length Surveyed	133.30
Lining				Year laid		Year rehabilitated		Weather	Dry	
Purpose	Maintenance Related			Cat						
Additional info										
Location							Yard			
Project							CCTV_20130414_20130420_EC			
Northing							Easting			
Coordinate System							Elevation			
							GPS Accuracy			
							Work Order			
							-			



Pipe Graphic Report of PSR 009376STMP

for CH2M HILL

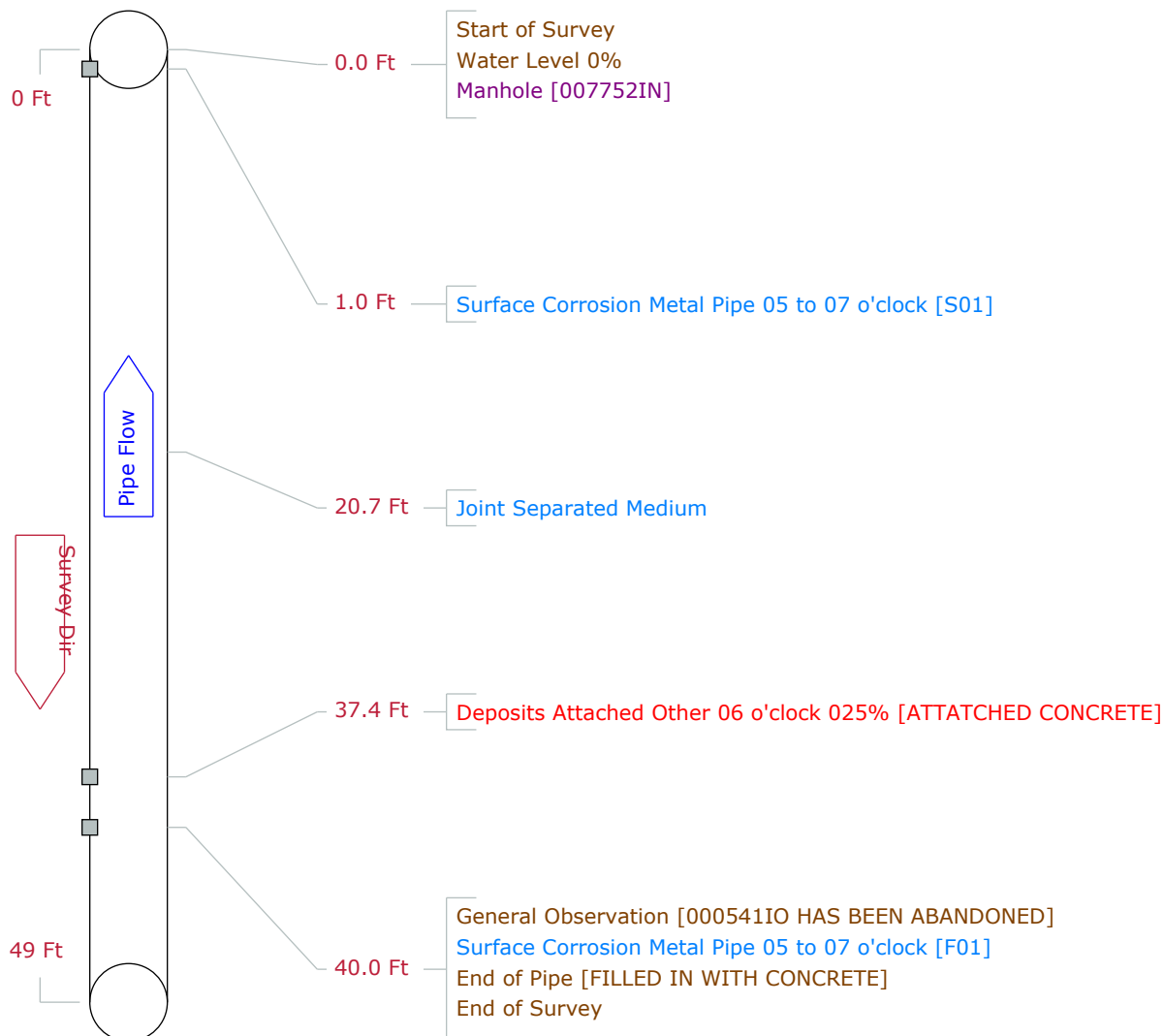
Setup	16	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA	
Drainage	HOOFS RUN	Survey Customer	CH2M HILL					
P/O #		Date	2012/07/20	Time	10:22	Street	2801 VALLEY DR.	
City	ALEXANDRIA	Further location details (INDEX TILE)C-8C						
Start	000450CB	Rim to invert	3.80	Grade to invert		Rim to grade	Ft	
Finish	002539SMH	Rim to invert	7.30	Grade to invert		Rim to grade	Ft	
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-7-20	
Shape	Circular	Height	15	Width	ins	Preclean J	Year Cleaned 2012/07/20	
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	25.6	Ft Length Surveyed 24.00	
Lining		Year laid		Year rehabilitated		Weather	Damp	
Purpose	Maintenance Related	Cat						
Additional info	LIGHT CLEAN					Structural	O&M	Constructional
Location	Light Highway					Miscellaneous	Hydraulic	
Project	CASSCA_CCTV_20120715_20120721_SMU	Work Order						
Northing		Easting		Elevation				
Coordinate System		GPS Accuracy						



Pipe Graphic Report of PSR 009627STMP

for CH2M HILL

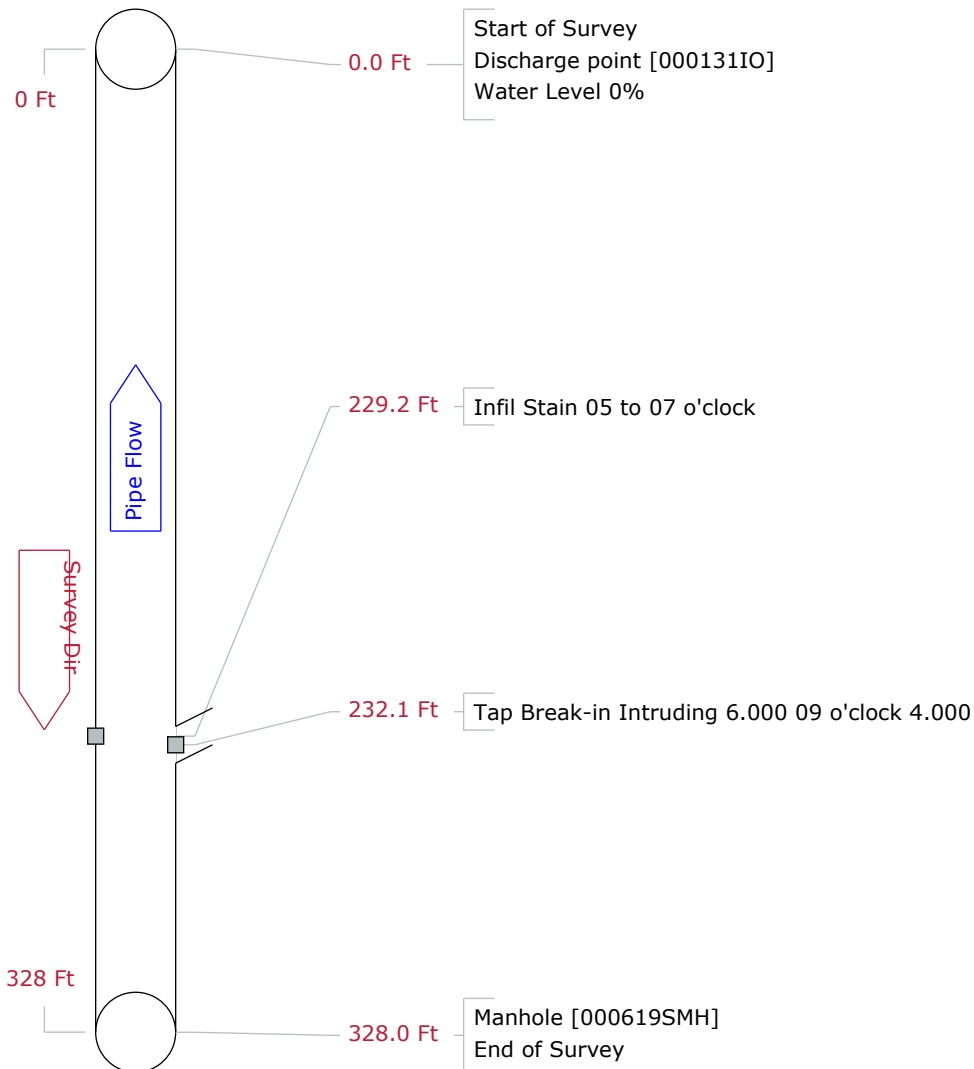
Setup	8	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/07/17	Time	14:36	Street	601 COMMONWEALTH AVE.
City	ALEXANDRIA	Further location details (INDEX TILE)F-10C					
Start	007752IN	Rim to invert	3.00	Grade to invert		Rim to grade	Ft
Finish	000541IO	Rim to invert	0.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-7-17
Shape	Circular	Height	15	Width	15 ins	Preclean	J Year Cleaned 2012/07/17
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	49.0	Ft Length Surveyed 40.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info	LIGHT CLEAN,,000541IO HAS BEEN ABANDONED				Structural	O&M	Constructional
Location	Sidewalk					Miscellaneous	Hydraulic
Project	CASSCA_CCTV_20120715_20120721_SMU				Work Order		
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 003336STMP

for CH2M HILL

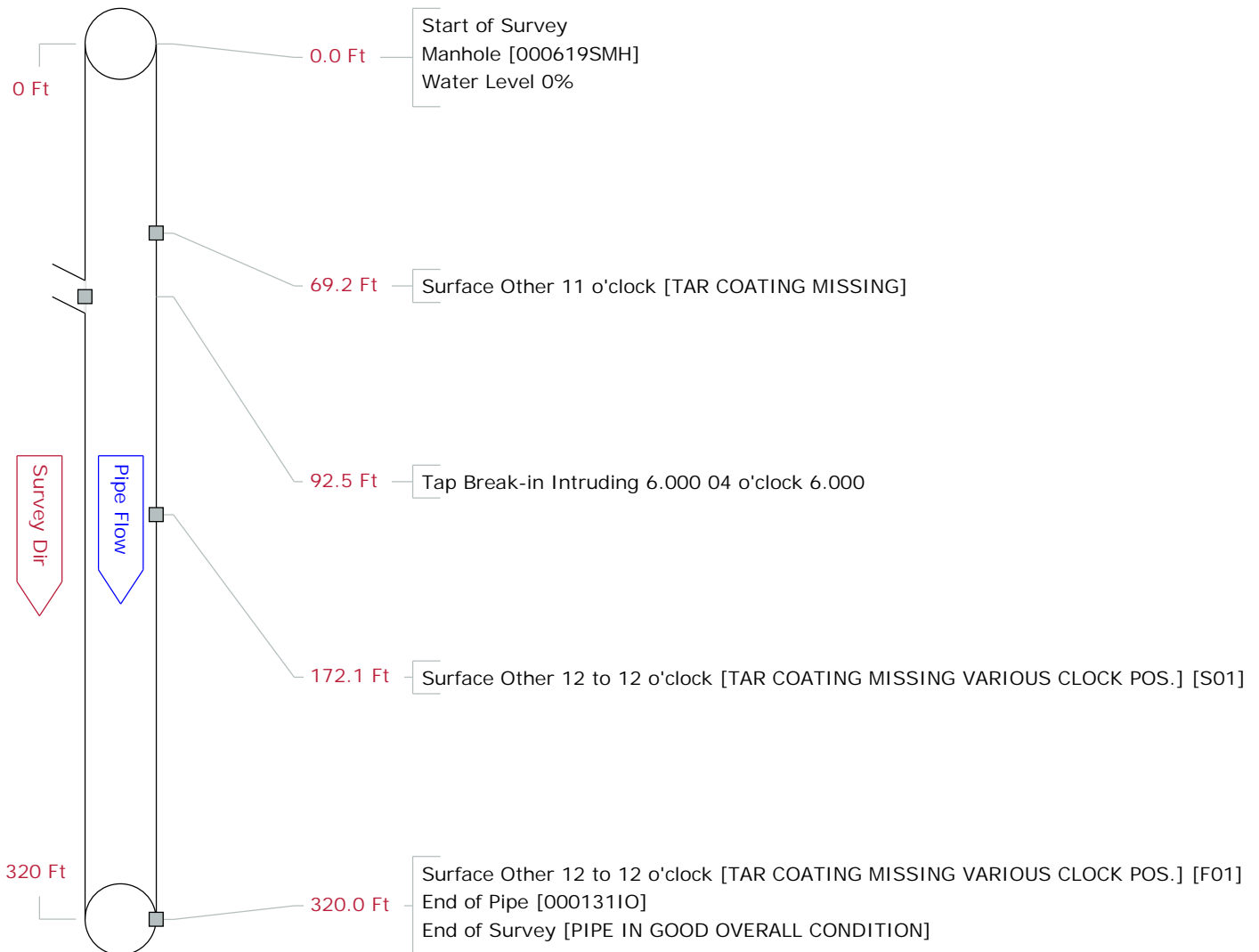
Setup	2	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA VA.
Drainage	CAMERON RL	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/11	Time	9:37	Street	WHEELER AVE.
City	ALEXANDRIA, VA	Further location details	FLIPPO CONST YARD UPSTREAM IN DRIVEWAY DOWNS TREAM BEHIND BUILDIN				
Start	000131IO	Rim to invert	2.50	Grade to invert	0.00	Rim to grade	Ft
Finish	000619SMH	Rim to invert	5.80	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH2MH 4-11
Shape	Oval	Height	30	Width	42 ins	Preclean	N
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	296.3	Ft	Length Surveyed
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location				Easement/Right of Way			
Project				CCTV_20130407_20130413_EC			
Northing				Easting			
Coordinate System				Elevation			
				GPS Accuracy			
				Work Order			



Pipe Graphic Report of PSR 003336STMP

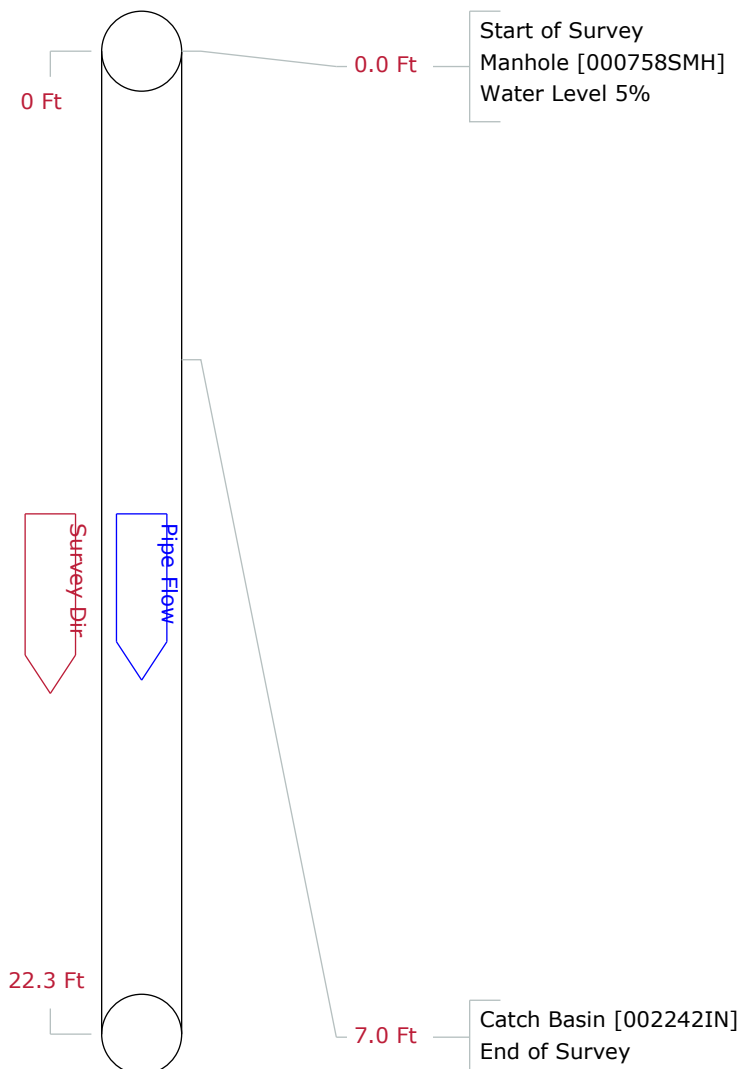
for CH2M HILL

Setup	27	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA				
Drainage	CAMERON RL			Survey Customer	CH2M HILL						
P/O #		Date	2012/11/06	Time	8:19	Street	3640 WHEELER AVE.				
City	ALEXANDRIA			Further location details (INDEX TILE) G-6d							
Start	000619SMH			Rim to invert	7.30	Grade to invert	Rim to grade	Ft			
Finish	000131IO			Rim to invert	0.00	Grade to invert	Rim to grade	Ft			
Use	Stormwater			Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-11-6		
Shape	Oval			Height	21	Width	37 ins	Preclean	J	Year Cleaned	2012/11/06
Material	Corrugated Metal Pipe			Joint length	20.0	Ft	Total length	296.3	Ft	Length Surveyed	320.00
Lining				Year laid	Year rehabilitated			Weather	Dry		
Purpose	Maintenance Related			Cat							
Additional info	RUNS UNDER PARKING LOT-WORK YARD OF FLIPPO CONST.										
Location	Parking Lot										
Project	CASSCA_CCTV_20121104_20121110_SMU						Work Order				
Northing				Easting				Elevation			
Coordinate System				GPS Accuracy							



for CH2M HILL

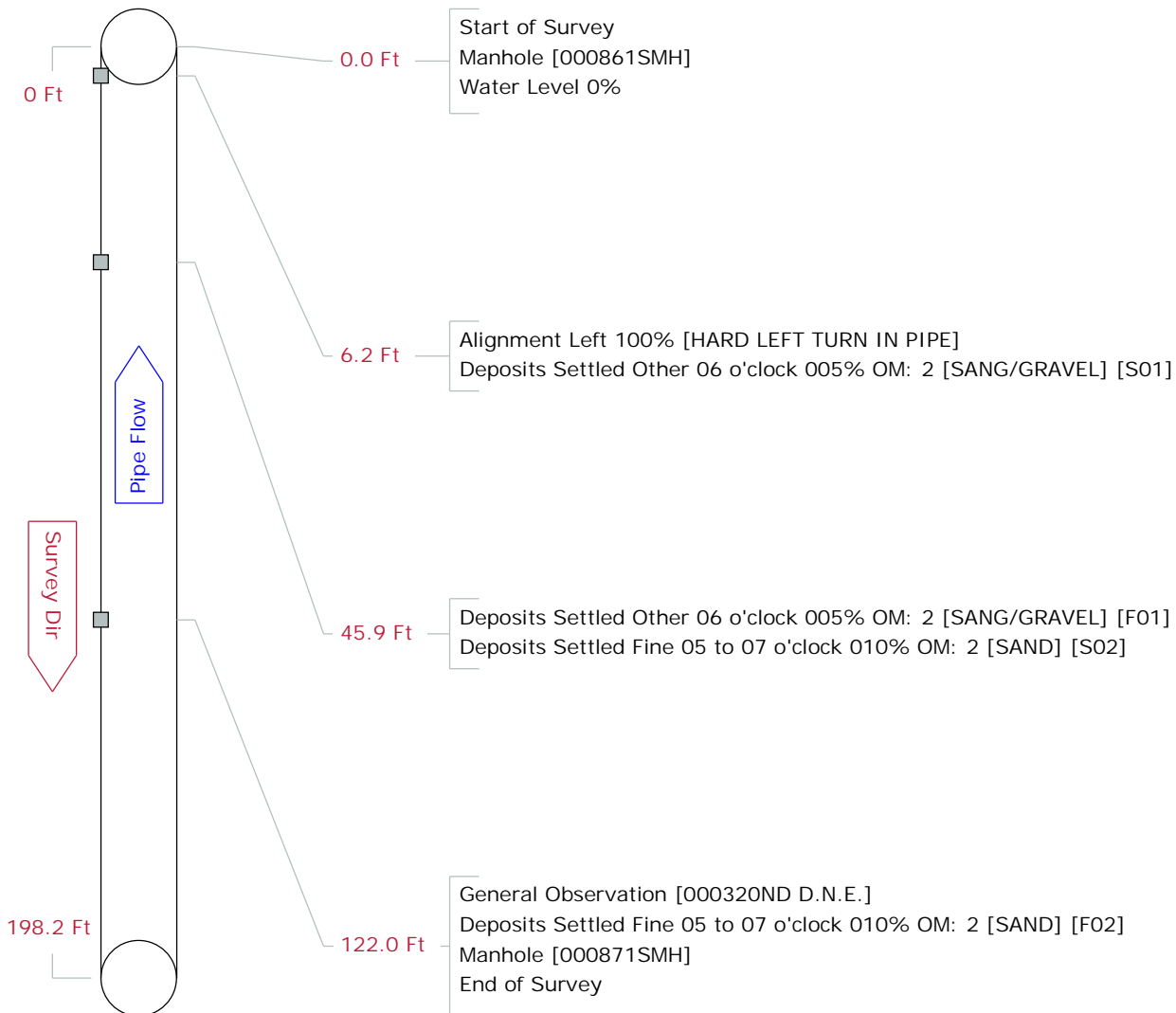
Setup	12	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA
Drainage	HOLMES RUN	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/15	Time	10:00	Street	TANEY AVE
City	ALEXANDRIA	Further location details					
Start	000758SMH	Rim to invert	5.90	Grade to invert		Rim to grade	Ft
Finish	002242IN	Rim to invert	5.50	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2MH 4-15
Shape	Circular	Height	10	Width	ins	Preclean J	Year Cleaned 2013/04/15
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	22.3	Ft	Length Surveyed 07.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location	Sidewalk						
Project	CCTV_20130414_20130420_EC	Work Order -					
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 004229STMP

for CH2M HILL

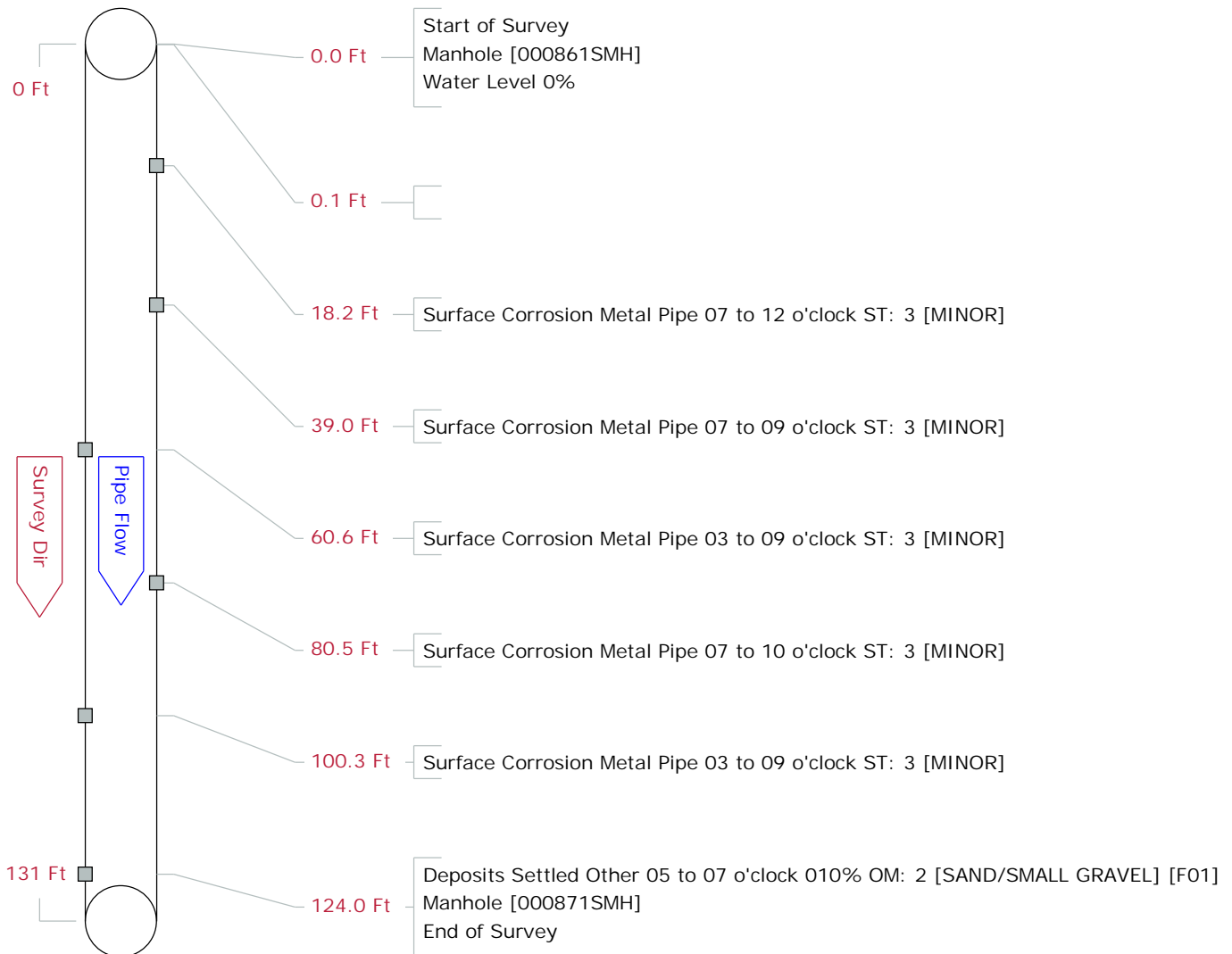
Setup	21	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA				
Drainage	CAMERON RL			Survey Customer	CH2M HILL						
P/O #		Date	2012/10/24	Time	12:13	Street	3400 DUKE ST.				
City	ALEXANDRIA			Further location details (INDEX TILE) G-6b							
Start	000861SMH			Rim to invert	10.00	Grade to invert	Rim to grade	Ft			
Finish	000871SMH			Rim to invert	0.00	Grade to invert	Rim to grade	Ft			
Use	Stormwater			Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-10-24		
Shape	Circular			Height	60	Width	ins	Preclean	J	Year Cleaned	2012/10/24
Material	Corrugated Metal Pipe			Joint length	20.0	Ft	Total length	198.2	Ft	Length Surveyed	122.00
Lining				Year laid		Year rehabilitated		Weather	Dry		
Purpose	Maintenance Related			Cat							
Additional info							PIPE MAKES LEFT TURN & CONNECTS 000871SMH				
Location							Light Highway				
Project							CASSCA_CCTV_20121021-20121027_SMU				
Northing							Easting				
Coordinate System							Elevation				
							GPS Accuracy				



Pipe Graphic Report of PSR 004230STMP

for CH2M HILL

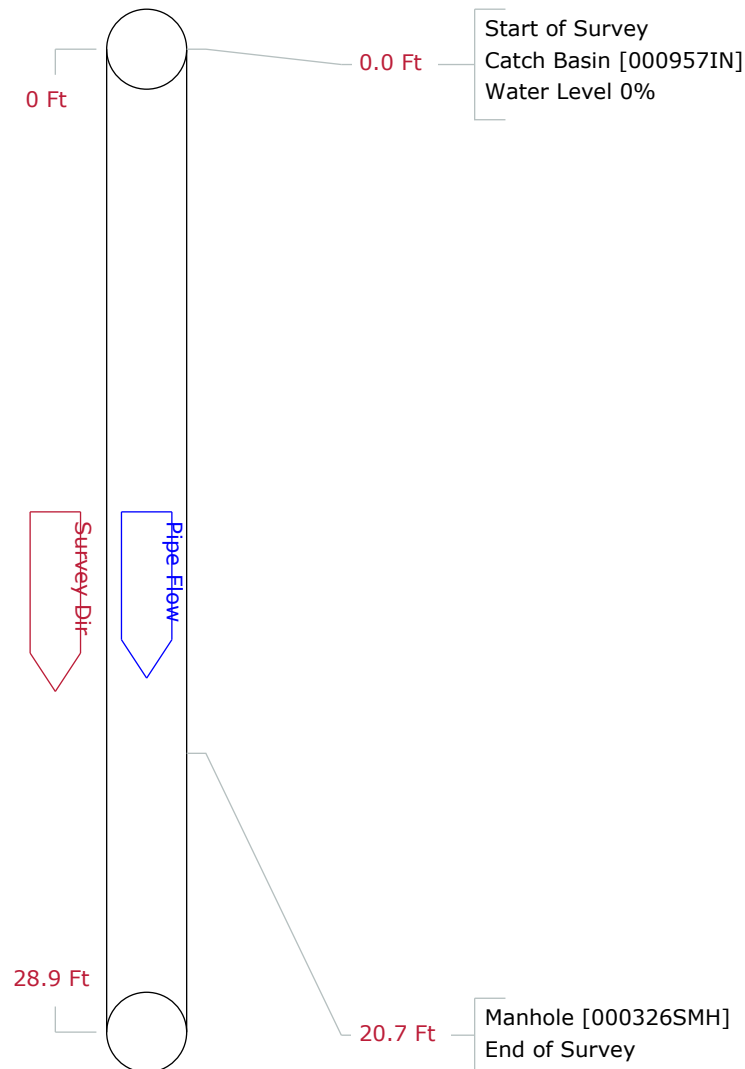
Setup	22	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA									
Drainage	CAMERON RL			Survey Customer	CH2M HILL											
P/O #		Date	2012/10/24	Time	9:54	Street	99 ARELL CT.									
City	ALEXANDRIA			Further location details (INDEX TILE) G-6b												
Start	000861SMH			Rim to invert	10.00	Grade to invert	Rim to grade	Ft								
Finish	000871SMH			Rim to invert	12.00	Grade to invert	Rim to grade	Ft								
Use	Stormwater			Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-10-24							
Shape	Circular			Height	60	Width	ins	Preclean	J	Year Cleaned	2012/10/24					
Material	Corrugated Metal Pipe			Joint length	20.0	Ft	Total length	131.0	Ft	Length Surveyed	124.00					
Lining				Year laid		Year rehabilitated		Weather	Dry							
Purpose	Maintenance Related			Cat												
Additional info																
Location												Easement/Right of Way				
Project							CASSCA_CCTV_20121021-20121027_SMU					Work Order				
Northing							Easting					Elevation				
Coordinate System												GPS Accuracy				



Pipe Graphic Report of PSR 001829STMP

for CH2M HILL

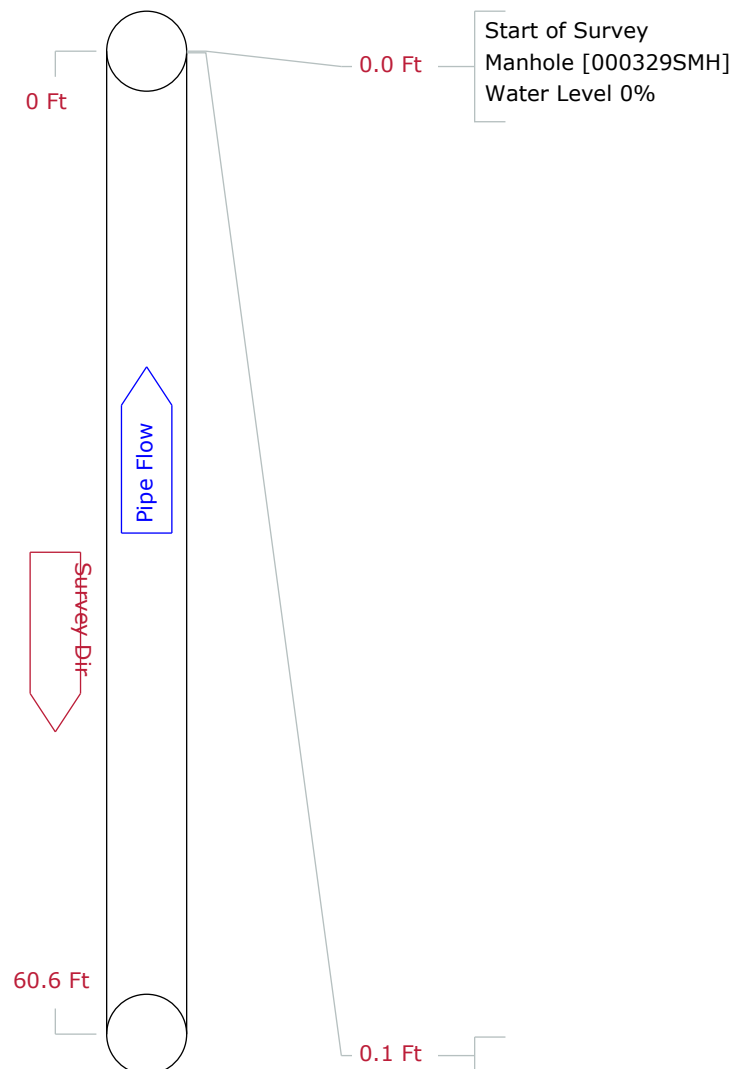
Setup	3	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA VA.
Drainage	FOUR MILE R	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/11	Time	12:43	Street	N HAMPTON DR.
City	ALEXANDRIA, VA	Further location details					
Start	000957IN	Rim to invert	8.80	Grade to invert		Rim to grade	Ft
Finish	000326SMH	Rim to invert	12.60	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2MH 4-11
Shape	Circular	Height	48	Width	ins	Preclean	N
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	28.9	Ft	Length Surveyed
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info							
Location						Sidewalk	
Project						CCTV_20130407_20130413_EC	
Northing						Easting	
Coordinate System						GPS Accuracy	
						Work Order -	



Pipe Graphic Report of PSR 001846STMP

for CH2M HILL

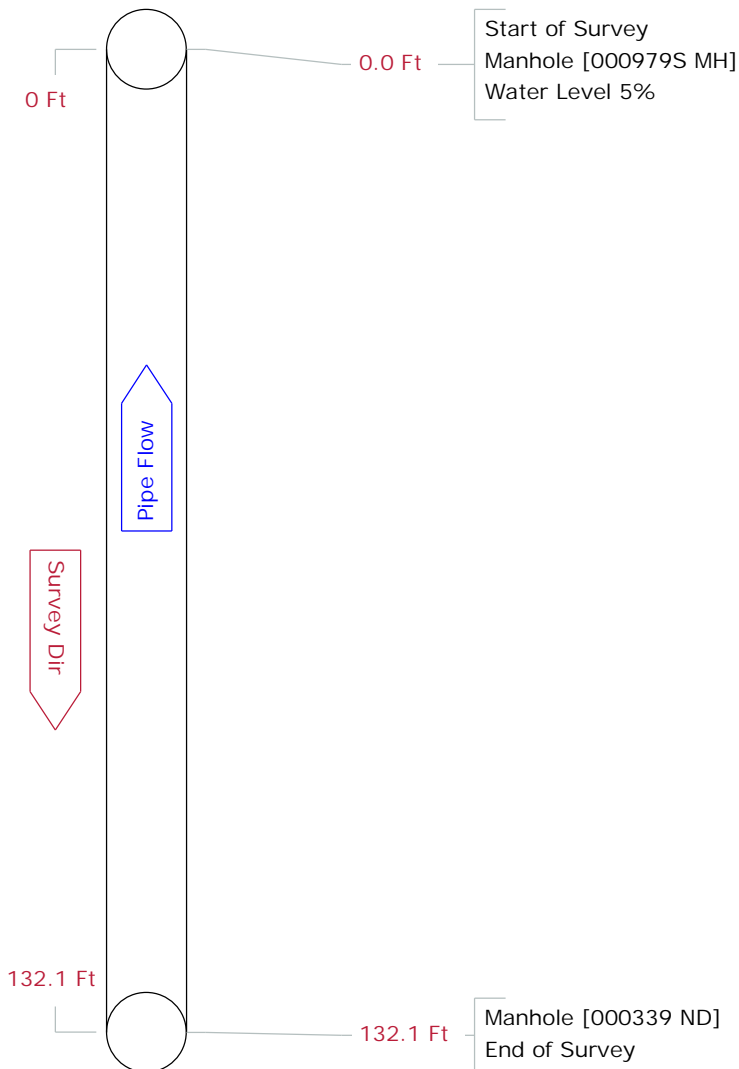
Setup	13	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA
Drainage	FOUR MILE R	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/15	Time	10:40	Street	KING ST
City	ALEXANDRIA	Further location details					
Start	000329SMH	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	000966IN	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH2MH 4-15
Shape	Circular	Height	15	Width	ins	Preclean	N
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	60.6	Ft	Length Surveyed 00.10
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location				Light Highway			
Project				CCTV_20130414_20130420_EC			
Northing				Easting			
Coordinate System				Elevation			
				GPS Accuracy			
				Work Order -			



Pipe Graphic Report of PSR 000339ND

for CH2MHILL

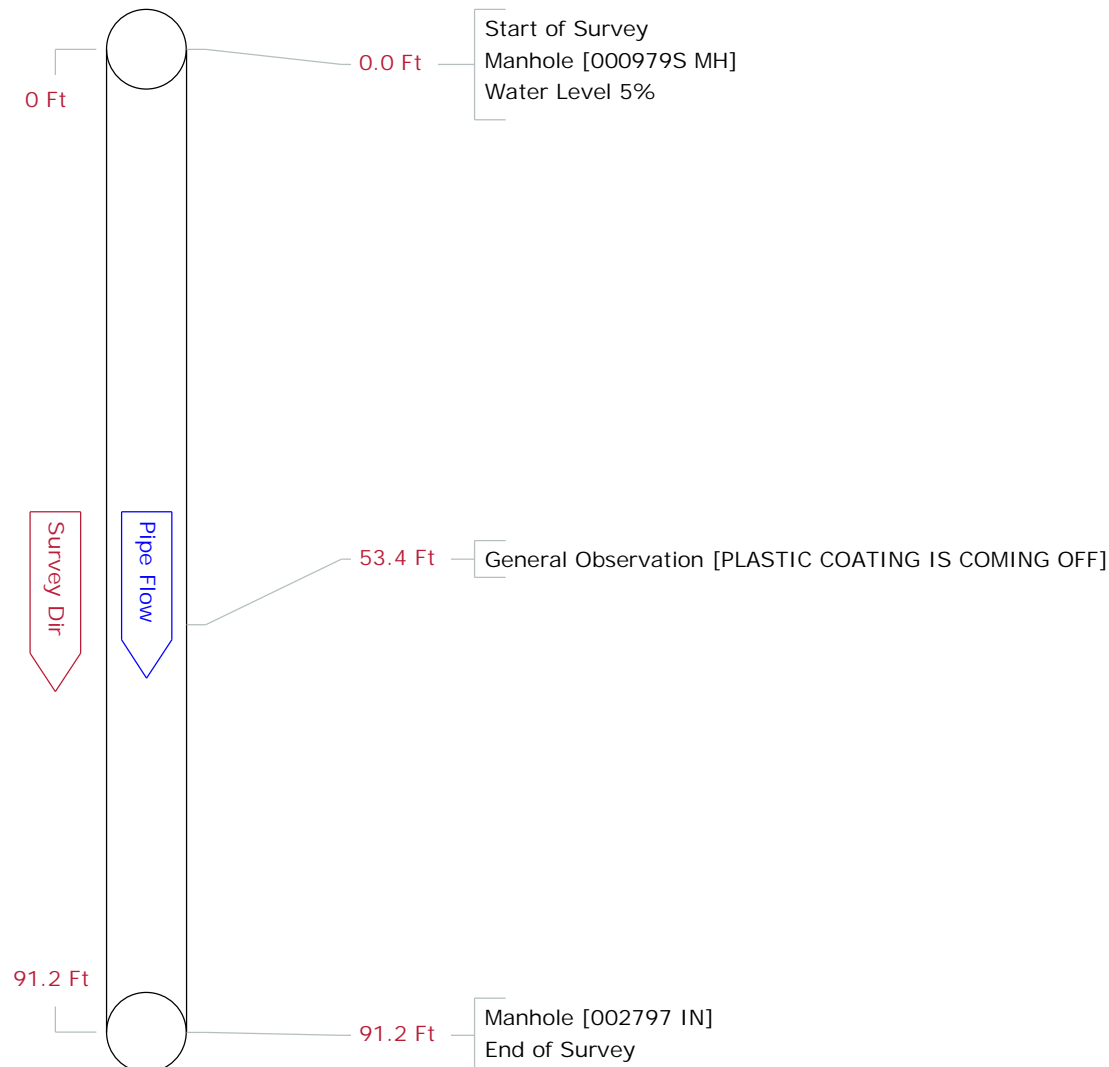
Setup 5	Surveyor GTT	Certificate # U-207-4469	System Owner ALEXANDERA VA
Drainage FOUR MILE R	Survey Customer CH2MHILL		
P/O # 004471STMP	Date 2012/08/23	Time 10:27	Street 6020 NAGY PL
City ALEXANDERA	Further location details		
Start 000979SMH	Rim to invert	Grade to invert	Rim to grade Ft
Finish 000339ND	Rim to invert	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Upstream	Flow control	Media No 1
Shape Circular	Height 18	Width ins	Preclean H
Material Corrugated Metal Pipe	Joint length	Ft	Total length Ft
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Post Rehabilitation Survey	Cat		
Additional info			
Location Light Highway			
Project CASSCA_CCTV_20120819_20120825_GTT		Work Order	
Northing	Easting	Elevation	
Coordinate System		GPS Accuracy	



Pipe Graphic Report of PSR 000979S MH

for CH2MHILL

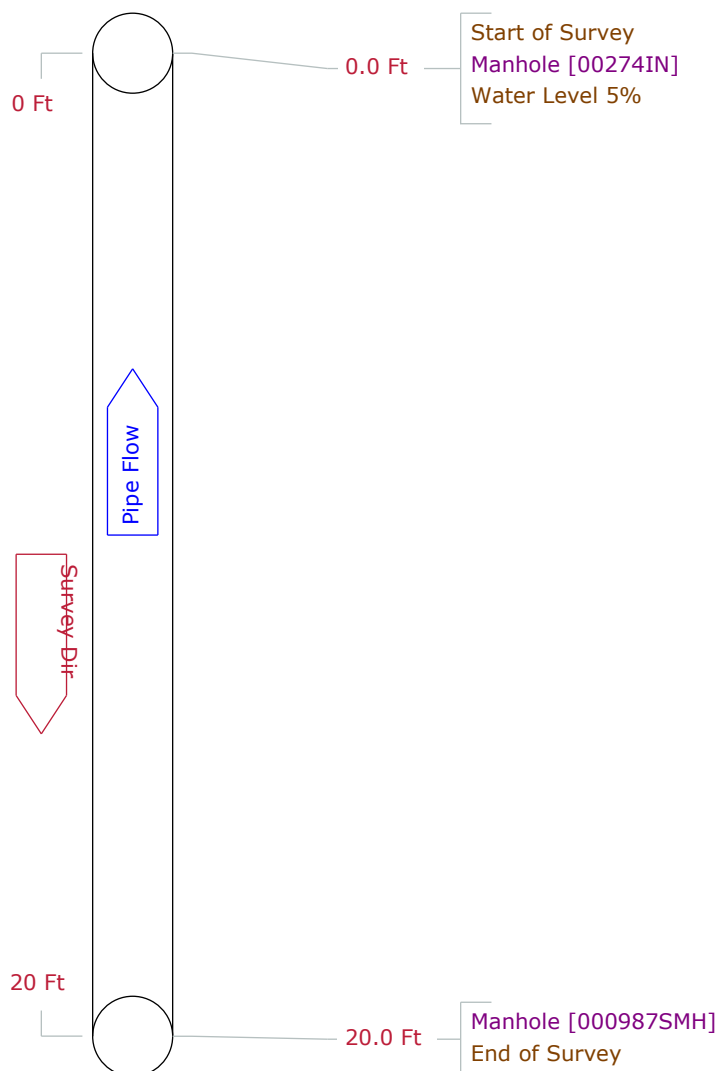
Setup	1	Surveyor	GTT	Certificate #	U-207-4469	System Owner	ALEXANDERA VA
Drainage	FOUR MILE R	Survey Customer	CH2MHILL				
P/O #	004471STMP	Date	2012/08/23	Time	13:03	Street	6020 NAGY PL
City	ALEXANDERA	Further location details					
Start	000979SMH	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	002797IN	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control		Media No	1
Shape	Circular	Height	18	Width	ins	Preclean	H
						Year Cleaned	2012/08/23
Material	Corrugated Metal Pipe	Joint length		Ft	Total length	Ft	Length Surveyed
							91.20
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Post Rehabilitation Survey			Cat			
Additional info							
Location	Light Highway						
Project	CASSCA_CCTV_20120819_20120825_GTT					Work Order	
Northing	Easting		Elevation				
Coordinate System			GPS Accuracy				



Pipe Graphic Report of PSR 004444STMP

for CH2MHILL

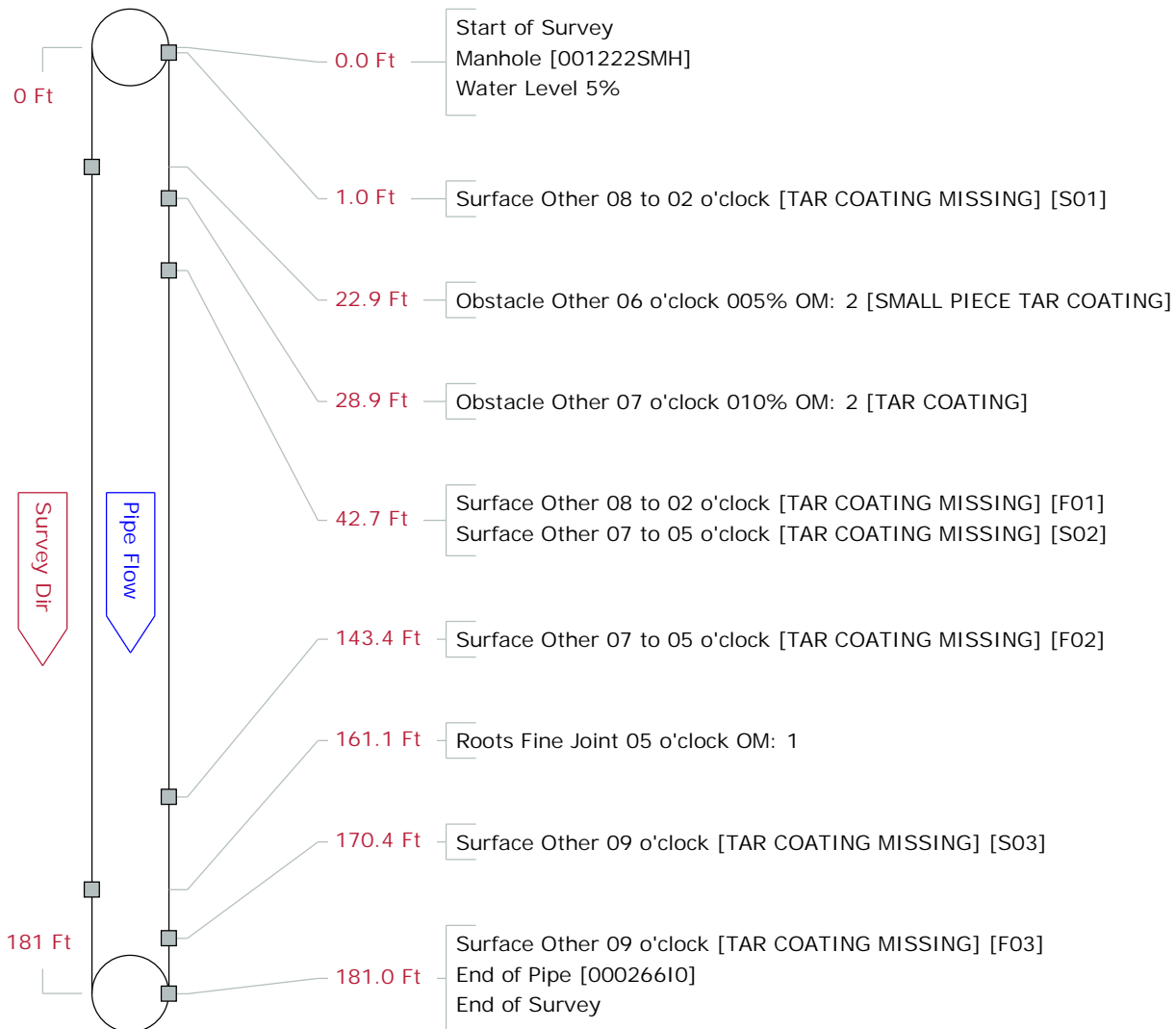
Setup	7	Surveyor	GTT	Certificate #	U-207-4469	System Owner	CITY OF ALEXANDRIA
Drainage		Survey Customer					
P/O #		Date	2012/08/28	Time	12:16	Street	320 N JORDAN ST
City	ALEXANDRIA	Further location details					
Start	00274IN	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	000987SMH	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control		Media No	1
Shape	Circular	Height	8	Width	ins	Preclean	H
Material	Corrugated Metal Pipe	Joint length		Ft	Total length		Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose				Cat			
Additional info						Structural	O&M
Location	Light Highway					Miscellaneous	Hydraulic
Project	CASSA_CCTV_20120826_20120901_DB					Constructional	
Northing		Easting		Elevation		Work Order	
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 005873STMP

for CH2M HILL

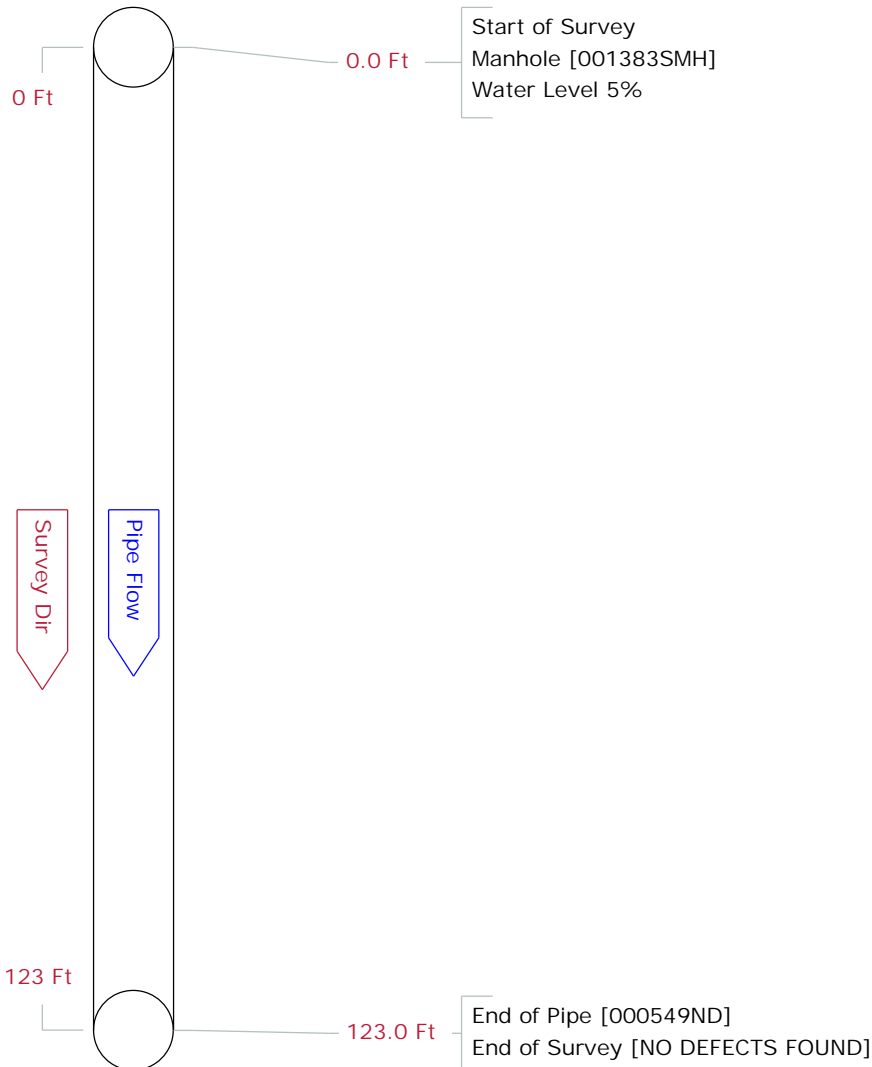
Setup	23	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOLMES RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/09/24	Time	12:16	Street	332 N.PICKETT ST.
City	ALEXANDRIA	Further location details (INDEX TILE) F-3b					
Start	001222SMH	Rim to invert	4.00	Grade to invert		Rim to grade	Ft
Finish	000266IO	Rim to invert	0.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-9-24
Shape	Egg Shaped	Height	24	Width	36 ins	Preclean	J
						Year Cleaned	2012/09/24
Material	Corrugated Metal Pipe	Joint length	18.0	Ft	Total length	173.8	Ft
						Length Surveyed	181.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location	Light Highway						
Project	CASSCA_CCTV_20120923_20120929_SMU					Work Order	
Northing	Easting		Elevation				
Coordinate System			GPS Accuracy				



Pipe Graphic Report of PSR 006303STMP

for CH2M HILL

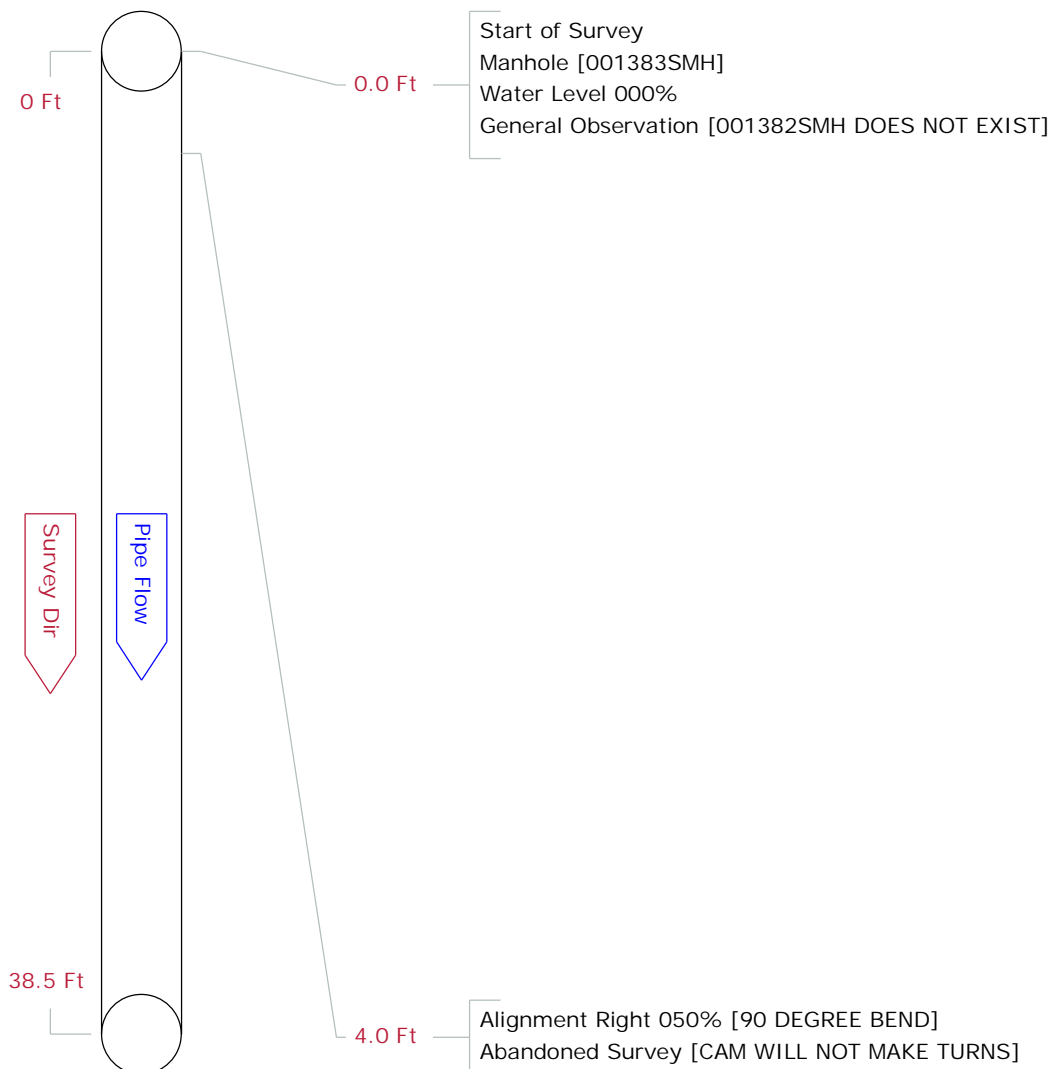
Setup	18	Surveyor	SMU	Certificate #	U-809-9223		System Owner	CITY OF ALEXANDRIA			
Drainage	HOLMES RUN		Survey Customer	CH2M HILL							
P/O #		Date	2012/09/21	Time	11:50	Street	6005 RIDDLE WK.				
City	ALEXANDRIA		Further location details (INDEX TILE) E-2c								
Start	001383SMH			Rim to invert	9.60	Grade to invert		Rim to grade	Ft		
Finish	000549ND			Rim to invert	0.00	Grade to invert		Rim to grade	Ft		
Use	Stormwater			Direction	Downstream	Flow control	Not Controlled		Media No	CH2M-9-21	
Shape	Circular			Height	60	Width	ins	Preclean	J	Year Cleaned	2012/09/21
Material	Corrugated Metal Pipe			Joint length	25.0	Ft	Total length	41.3	Ft	Length Surveyed	123.00
Lining				Year laid			Year rehabilitated			Weather	Dry
Purpose	Maintenance Related			Cat							
Additional info											
Location	Alley										
Project	CASSCA_CCTV_20120916_20120922_SMU						Work Order				
Northing		Easting			Elevation						
Coordinate System					GPS Accuracy						



Pipe Graphic Report of PSR 006756STMP

for CH2M HILL

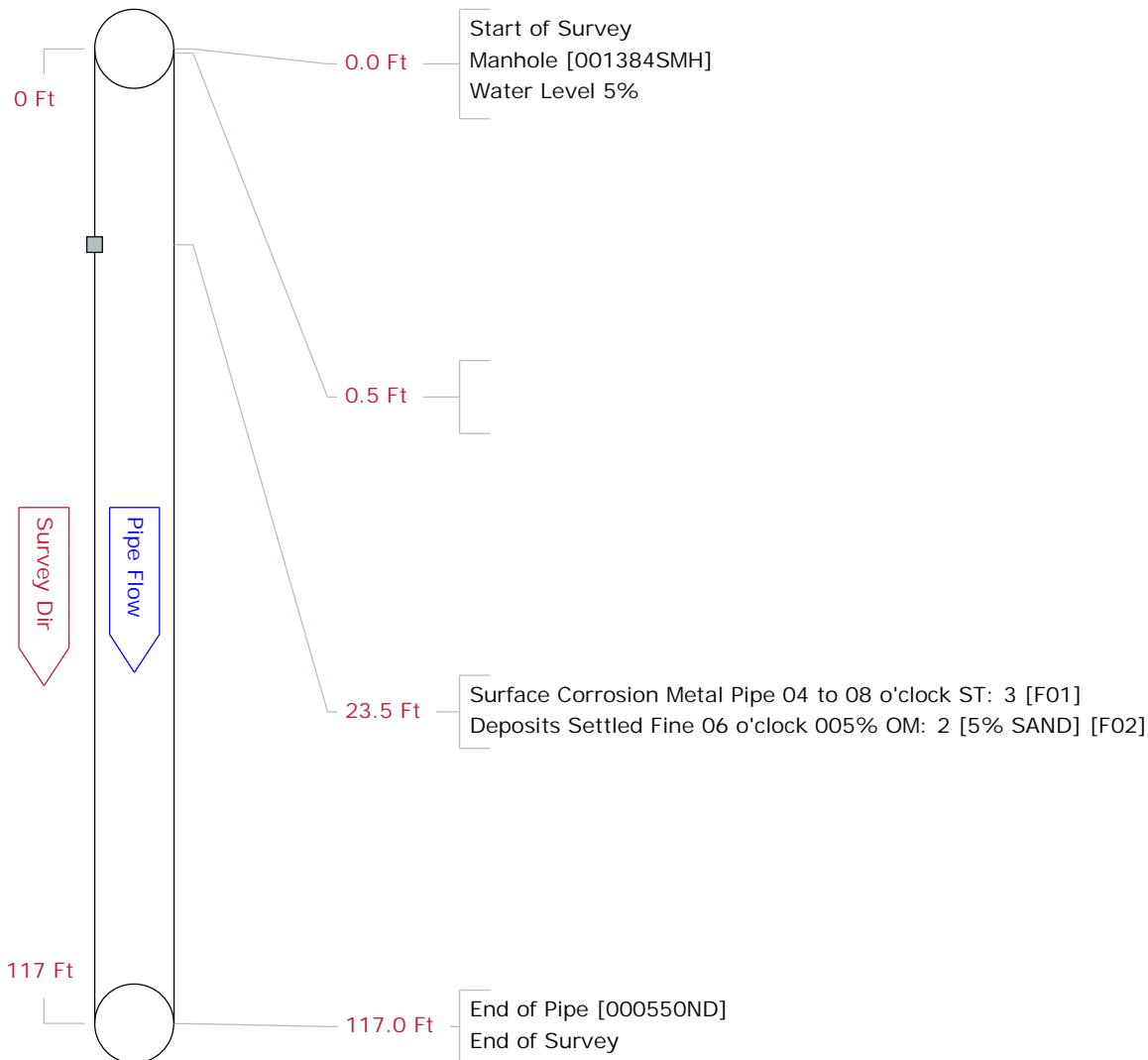
Setup	19	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOLMES RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/09/21	Time	13:10	Street	6003 RIDDLE WK.
City	ALEXANDRIA	Further location details (INDEX TILE) E-2c					
Start	001383SMH	Rim to invert	9.60	Grade to invert		Rim to grade	Ft
Finish	001510SMH	Rim to invert	3.80	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-9-21
Shape	Circular	Height	15	Width	ins	Preclean	J
						Year Cleaned	2012/09/21
Material	Corrugated Metal Pipe	Joint length	12.0	Ft	Total length	38.5	Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info	001382SMH DOES NOT EXIST					Work Order	
Location	Alley						
Project	CASSCA_CCTV_20120916_20120922_SMU						
Northing	Easting						
Coordinate System						Elevation	
						GPS Accuracy	



Pipe Graphic Report of PSR 0063055STMP

for CH2M HILL

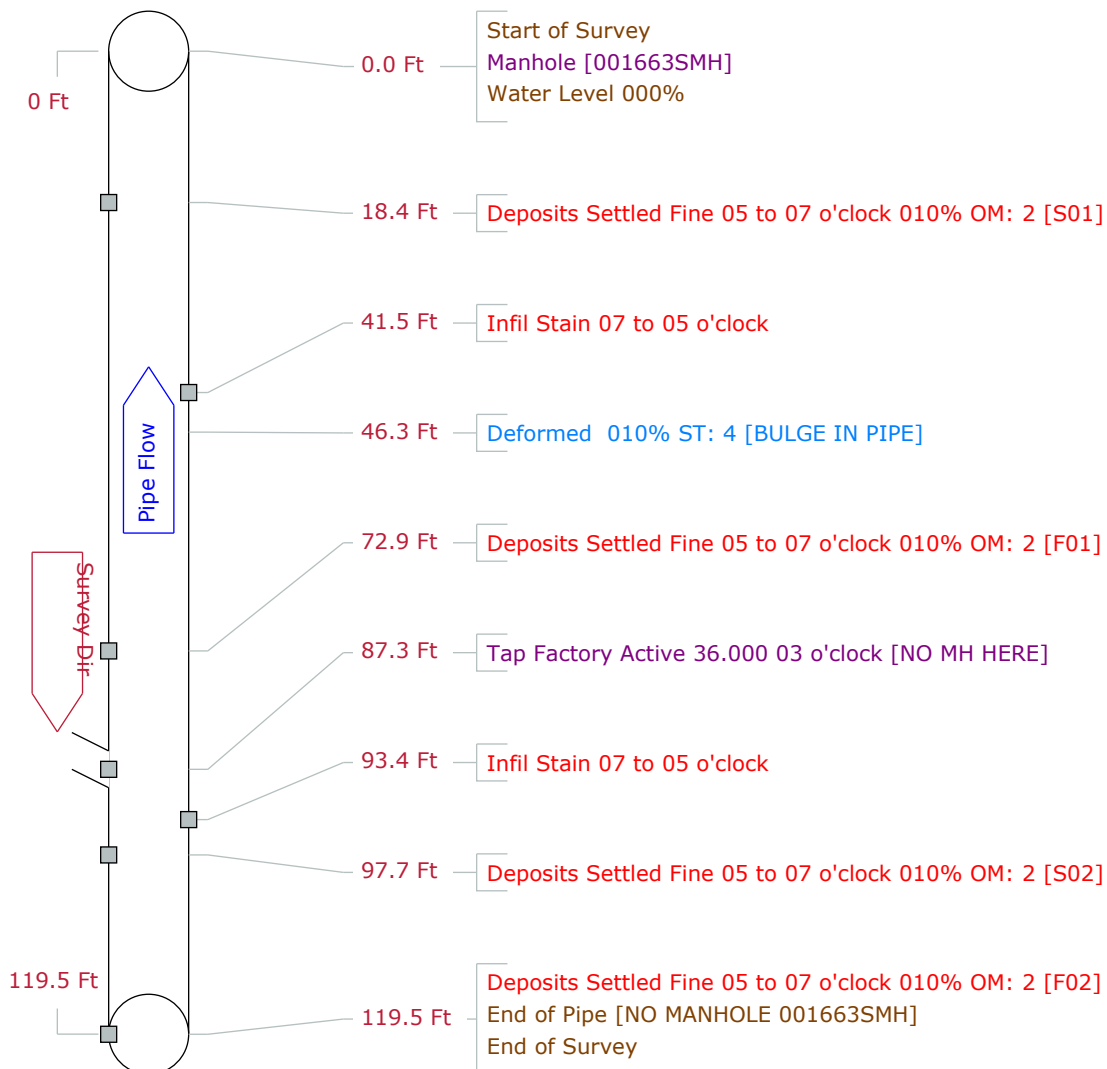
Setup	17	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOLMES RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/09/21	Time	10:39	Street	6003 RICKETTS WK.
City	ALEXANDRIA	Further location details (INDEX TILE) E-2c					
Start	001384SMH	Rim to invert	8.00	Grade to invert		Rim to grade	Ft
Finish	000550ND	Rim to invert	0.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-9-21
Shape	Circular	Height	60	Width	ins	Preclean	J
						Year Cleaned	2012/09/21
Material	Corrugated Metal Pipe	Joint length	25.0	Ft	Total length	71.9	Ft
						Length Surveyed	117.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location	Alley						
Project	CASSCA_CCTV_20120916_20120922_SMU					Work Order	
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 006957STMP

for CH2MHILL

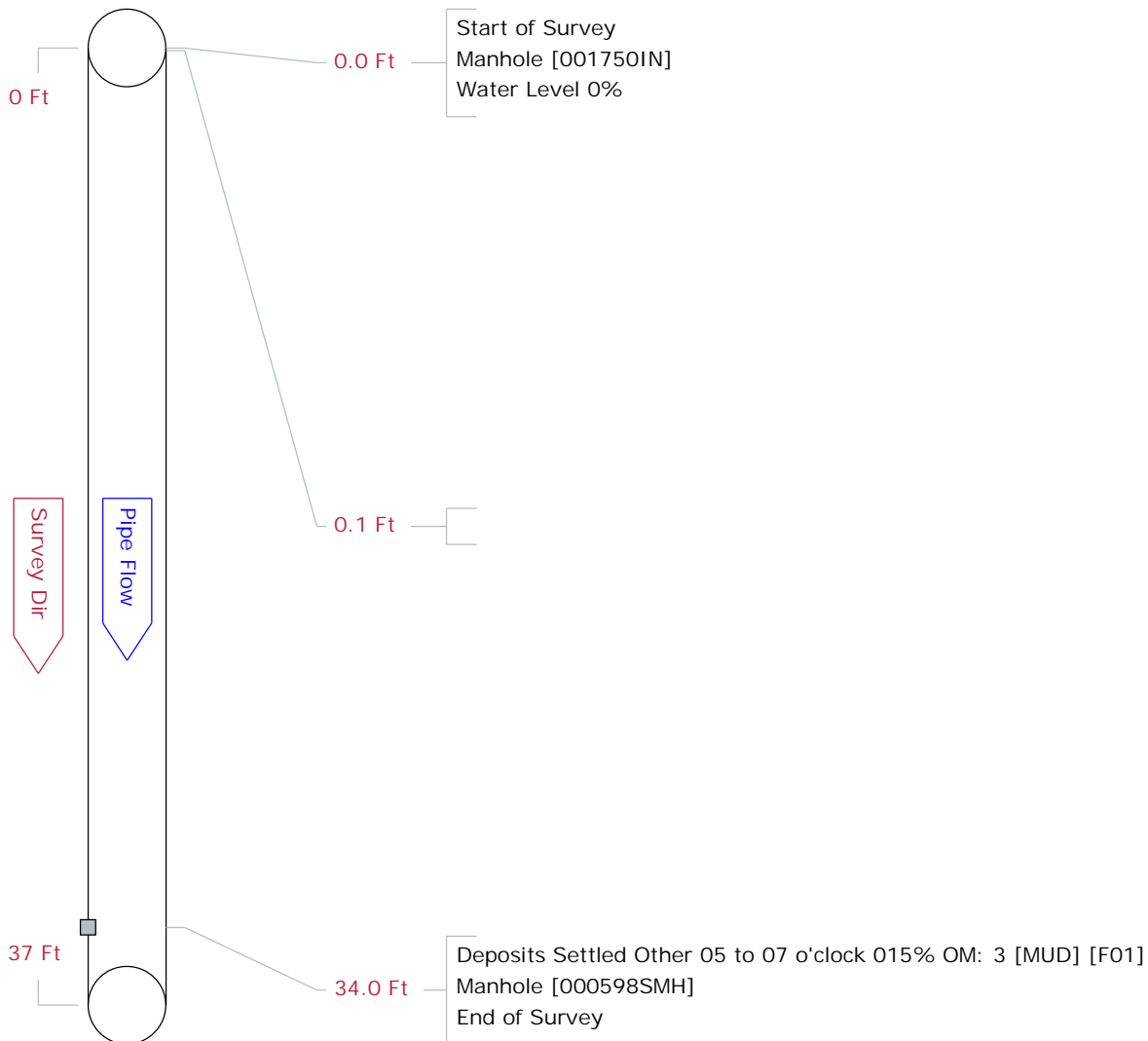
Setup	4	Surveyor	JAW	Certificate #	U-1209-9946	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFFS RUN	Survey Customer	CH2MHILL				
P/O #	946299	Date	2012/07/25	Time	9:17	Street	1416 DUKE ST
City	ALEXANDRIA	Further location details					
Start	004921IN	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	001663SMH	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH72512
Shape	Egg Shaped	Height	36	Width	55 ins	Preclean	J
Material	Corrugated Metal Pipe	Joint length	10.0	Ft	Total length	80.4	Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info						Structural	O&M
Location						Miscellaneous	Hydraulic
Project						Work Order	
Northing						Elevation	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 002708STMP

for CH2M HILL

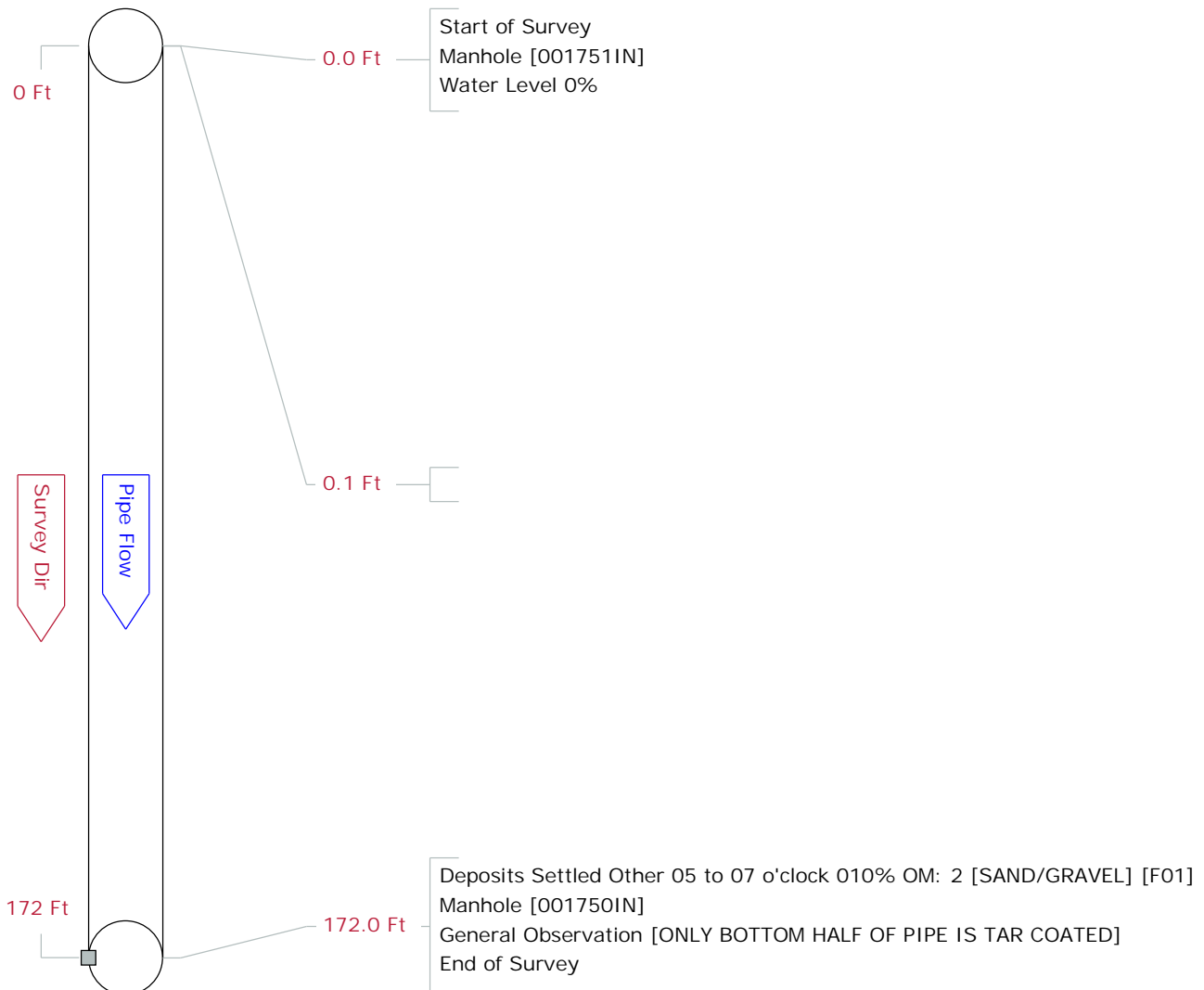
Setup 23	Surveyor SMU	Certificate # U-809-9223	System Owner CITY OF ALEXANDRIA
Drainage CAMERON RL	Survey Customer CH2M HILL		
P/O #	Date 2012/10/25	Time 11:48	Street 3638 DUKE ST.
City ALEXANDRIA	Further location details (INDEX TILE) G-6b		
Start 001750IN	Rim to invert 5.10	Grade to invert	Rim to grade Ft
Finish 000598SMH	Rim to invert 12.00	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Downstream	Flow control Not Controlled	Media No CH2M-10-25
Shape Oval	Height 60	Width 80 ins	Preclean J Year Cleaned 2012/10/24
Material Corrugated Metal Pipe	Joint length 20.0 Ft	Total length 37.0 Ft	Length Surveyed 34.00
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Maintenance Related	Cat		
Additional info LINE ADDED TO SPREAD SHEET			
Location Light Highway			
Project CASSCA_CCTV_20121021-20121027_SMU			Work Order
Northing	Easting	Elevation	
Coordinate System		GPS Accuracy	



Pipe Graphic Report of PSR 002709STMP

for CH2M HILL

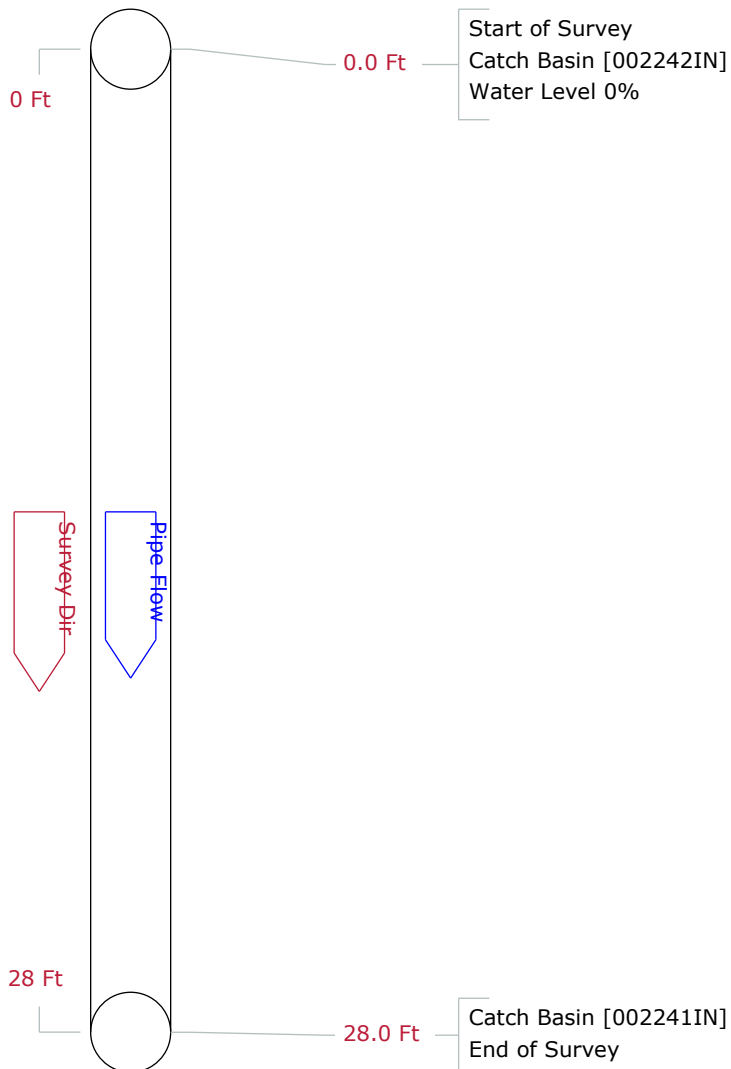
Setup	24	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	CAMERON RL	Survey Customer	CH2M HILL				
P/O #		Date	2012/10/25	Time	9:21	Street	CARRIAGE HOUSE CIR. AT DUKE ST.
City	ALEXANDRIA	Further location details (INDEX TILE) G-6b 1751IN @ CARRIAGE HOUSE & DUKE ST					
Start	001751IN	Rim to invert	9.90	Grade to invert		Rim to grade	Ft
Finish	001750IN	Rim to invert	5.10	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-10-25
Shape	Oval	Height	60	Width	80 ins	Preclean	J
						Year Cleaned	2012/10/24
Material	Corrugated Metal Pipe	Joint length	20.0	Ft	Total length	172.0	Ft
						Length Surveyed	172.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info	NO ADRESS GIVEN ON SPREAD SHEET						
Location	Light Highway						
Project	CASSCA_CCTV_20121021-20121027_SMU					Work Order	
Northing			Easting		Elevation		
Coordinate System					GPS Accuracy		



Pipe Graphic Report of PSR 003844STMP

for CH2M HILL

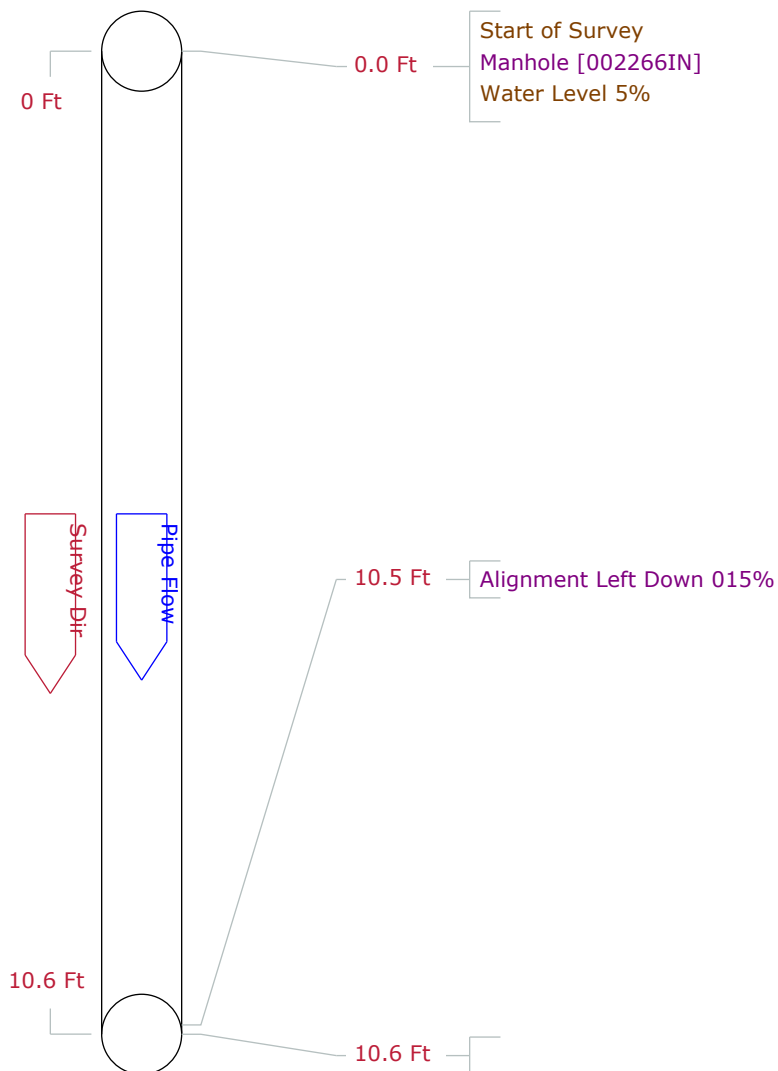
Setup	11	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA
Drainage	HOLMES RUN	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/15	Time	9:33	Street	TANEY AVE
City	ALEXANDRIA	Further location details					
Start	002242IN	Rim to invert	5.50	Grade to invert		Rim to grade	Ft
Finish	002241IN	Rim to invert	4.20	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2MH 4-15
Shape	Circular	Height	10	Width	ins	Preclean J	Year Cleaned 2013/04/15
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	26.6	Ft	Length Surveyed 28.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info							
Location				Sidewalk			
Project				CCTV_20130414_20130420_EC			
Northing				Easting			
Coordinate System				Elevation			
				GPS Accuracy			
				Work Order -			



Pipe Graphic Report of PSR 002552STMP

for CH2MHILL

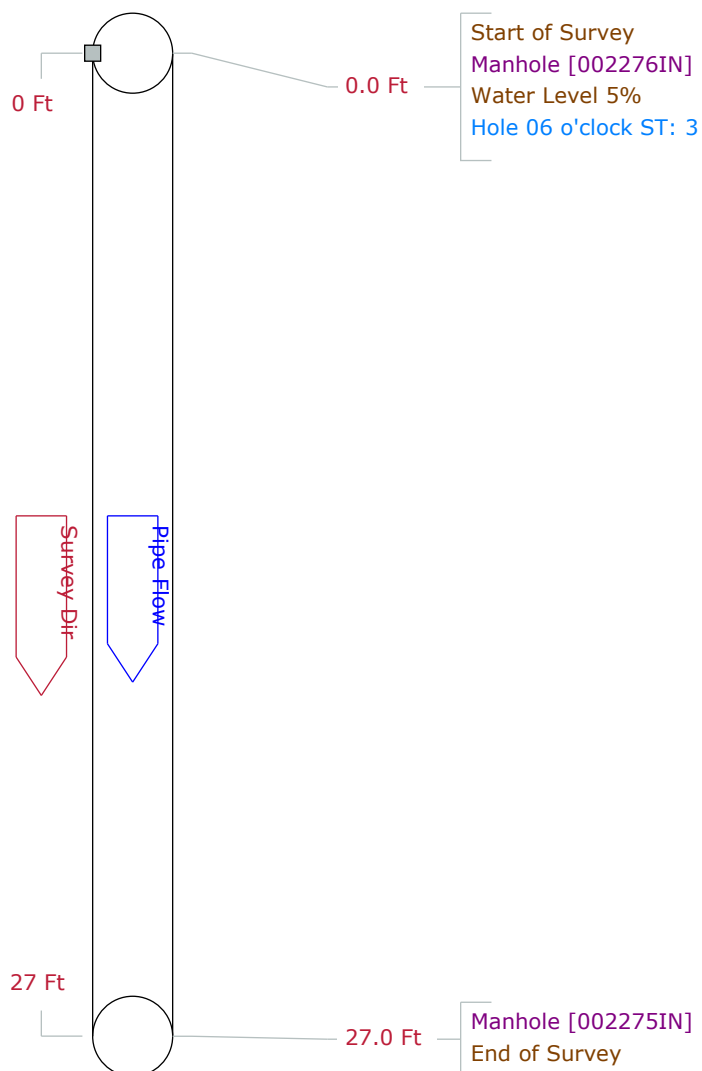
Setup	6	Surveyor	GTT	Certificate #	U-207-4469	System Owner	CITY OF ALEXANDRIA
Drainage		Survey Customer					
P/O #		Date	2012/08/28	Time	13:44	Street	320 N JORDAN ST
City	ALEXANDRIA	Further location details					
Start	002266IN	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	000284ND	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control		Media No	1
Shape	Circular	Height	12	Width	ins	Preclean	N
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	Ft	Length Surveyed	10.60
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose				Cat			
Additional info						Structural	O&M
Location						Miscellaneous	Hydraulic
Project						Work Order	
Northing						Elevation	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 003865STMP

for CH2MHILL

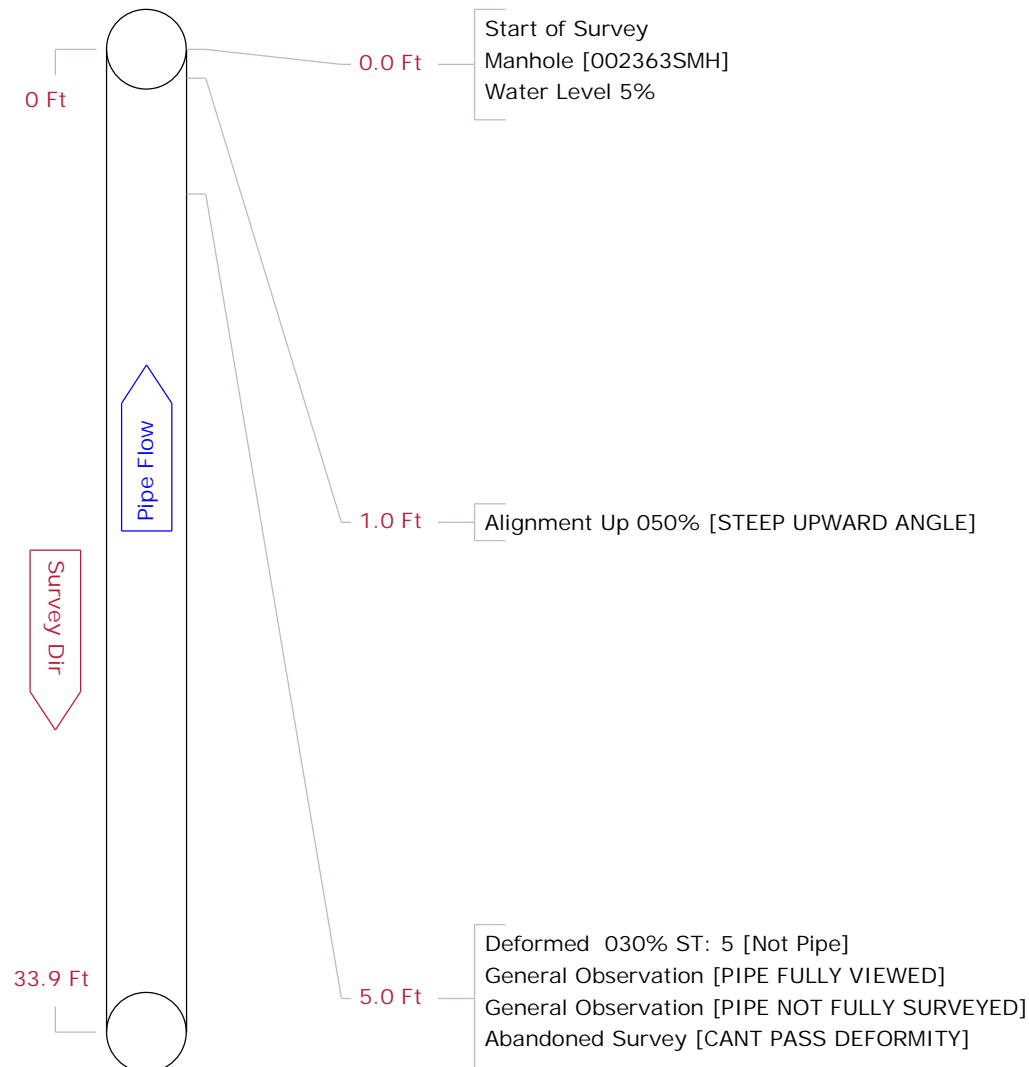
Setup	8	Surveyor	GTT	Certificate #	U-207-4469	System Owner	CITY OF ALEXANDRIA
Drainage		Survey Customer					
P/O #		Date	2012/08/28	Time	10:08	Street	320 N JORDAN ST
City	ALEXANDRIA	Further location details					
Start	002276IN	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	002275IN	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control		Media No	1
Shape	Circular	Height	15	Width	ins	Preclean	H
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	Ft	Length Surveyed	27.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose		Cat					
Additional info						Structural	O&M
Location	Light Highway					Miscellaneous	Hydraulic
Project	CASSA_CCTV_20120826_20120901_DB					Constructional	
Northing		Easting		Elevation		Work Order	
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 007343STMP-R

for CH2M HILL

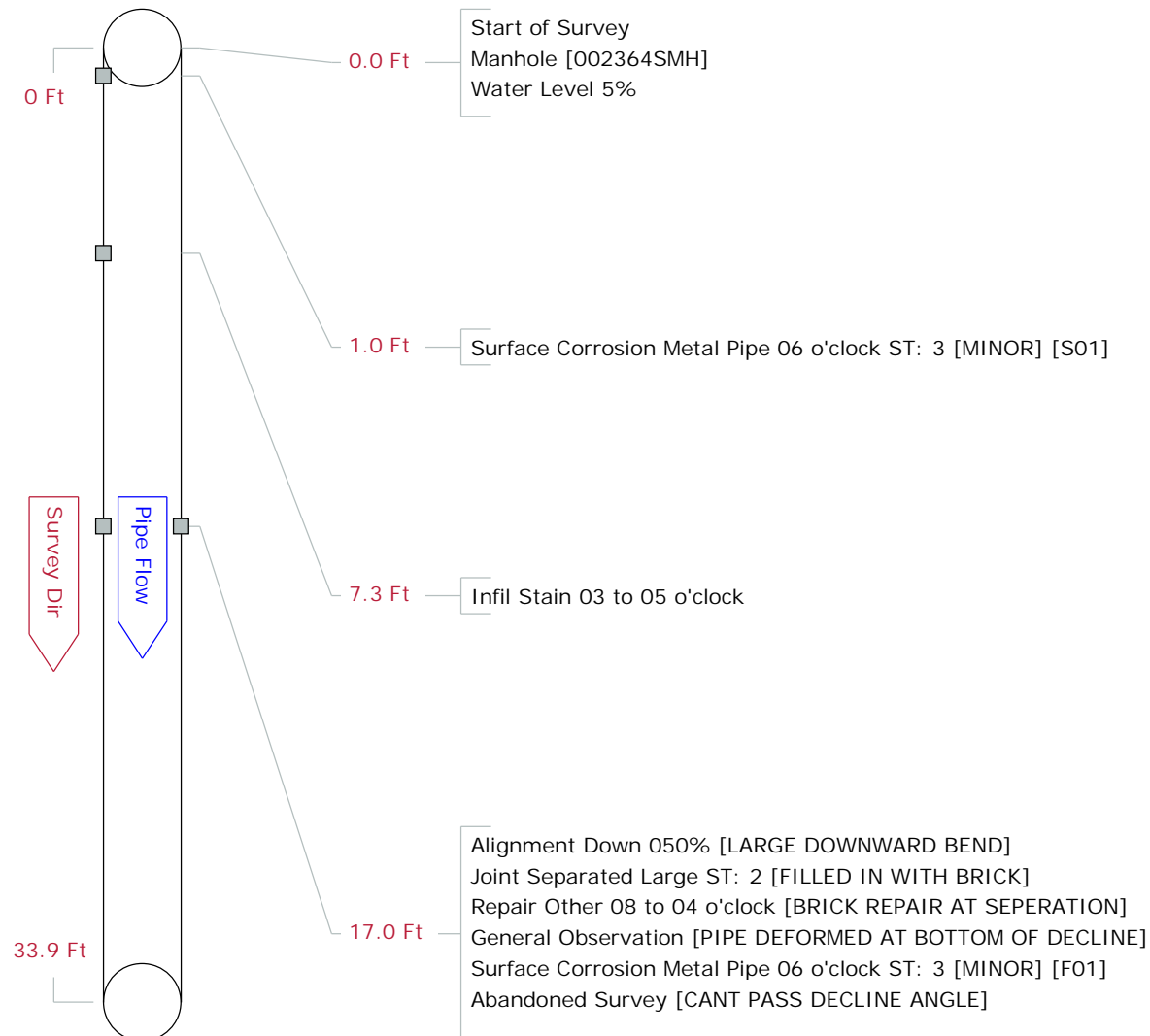
Setup	13	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA			
Drainage	POTOMAC RI	Survey Customer	CH2M HILL							
P/O #		Date	2012/10/01	Time	14:50	Street	701 N.FAIRFAX ST.			
City	ALEXANDRIA	Further location details			(INDEX TILE) F-12c LOCATED ON BIKE TRAIL NEXT TO TRAIN TRACKS					
Start	002363SMH		Rim to invert	4.20	Grade to invert	Rim to grade	Ft			
Finish	002364SMH		Rim to invert	3.00	Grade to invert	Rim to grade	Ft			
Use	Stormwater		Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-10-1		
Shape	Circular		Height	18	Width	ins	Preclean	J	Year Cleaned	2012/09/28
Material	Corrugated Metal Pipe		Joint length	20.0	Ft	Total length	33.9	Ft	Length Surveyed	05.00
Lining			Year laid		Year rehabilitated		Weather	Dry		
Purpose	Maintenance Related				Cat					
Additional info	REVERSE SET-UP									
Location	Easement/Right of Way									
Project	CASSCA_CCTV_20120930_20121006_SMU					Work Order				
Northing			Easting				Elevation			
Coordinate System						GPS Accuracy				



Pipe Graphic Report of PSR 007343STMP

for CH2M HILL

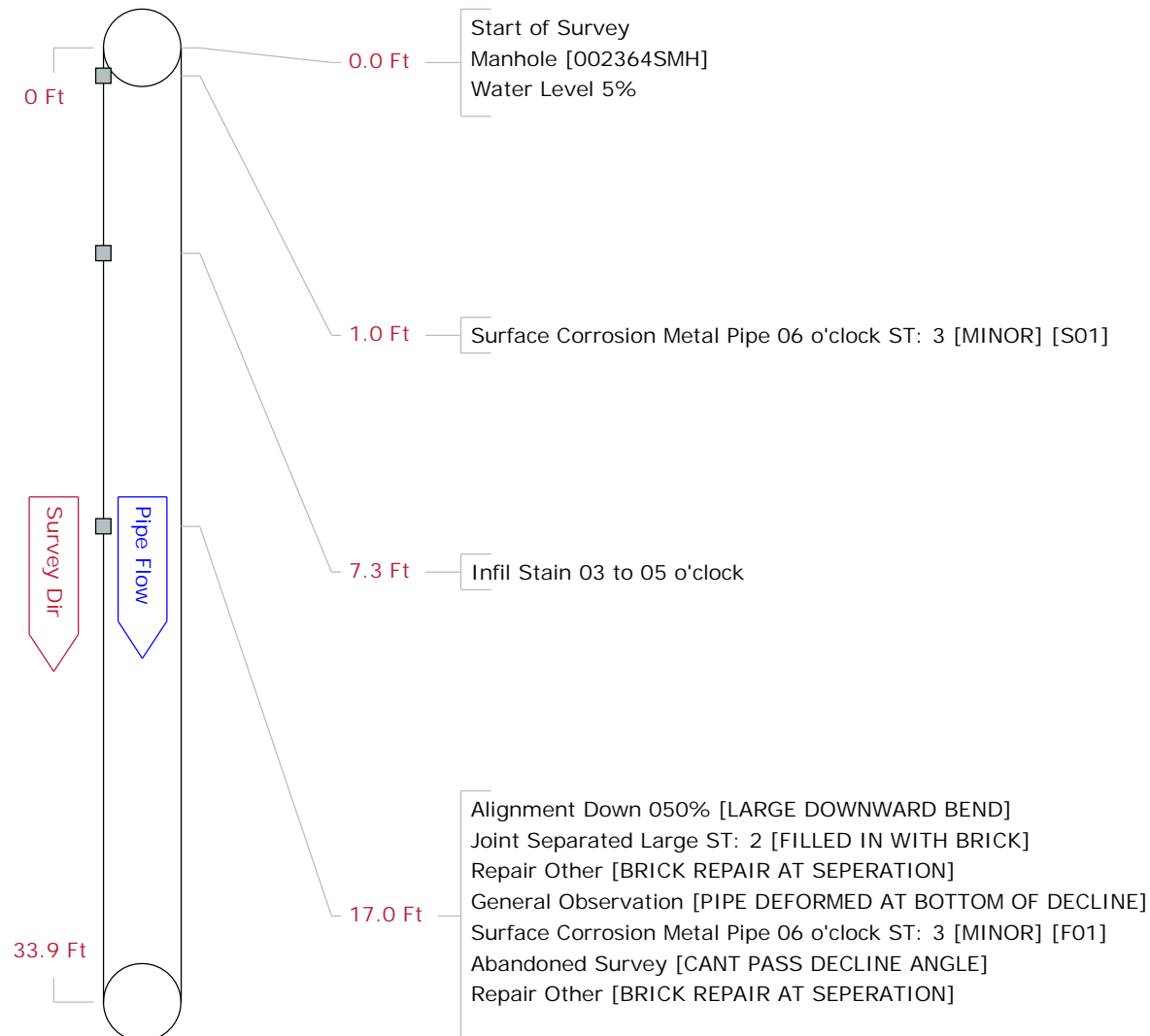
Setup	3	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	POTOMAC RIVER	Survey Customer	CH2M HILL				
P/O #		Date	2012/10/01	Time	14:12	Street	701 N.FAIRFAX ST.
City	ALEXANDRIA	Further location details			(INDEX TILE) F-12c LOCATED ON BIKE TRAIL NEXT TO TRAIN TRACKS		
Start	002364SMH	Rim to invert	3.00	Grade to invert		Rim to grade	Ft
Finish	002363SMH	Rim to invert	4.20	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-10-1
Shape	Circular	Height	18	Width	ins	Preclean	J
						Year Cleaned	2012/09/28
Material	Corrugated Metal Pipe	Joint length	20.0	Ft	Total length	33.9	Ft
						Length Surveyed	17.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location	Easement/Right of Way						
Project	CASSCA_CCTV_20120930_20121006_SMU					Work Order	
Northing			Easting		Elevation		
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 007343STMP

for CH2M HILL

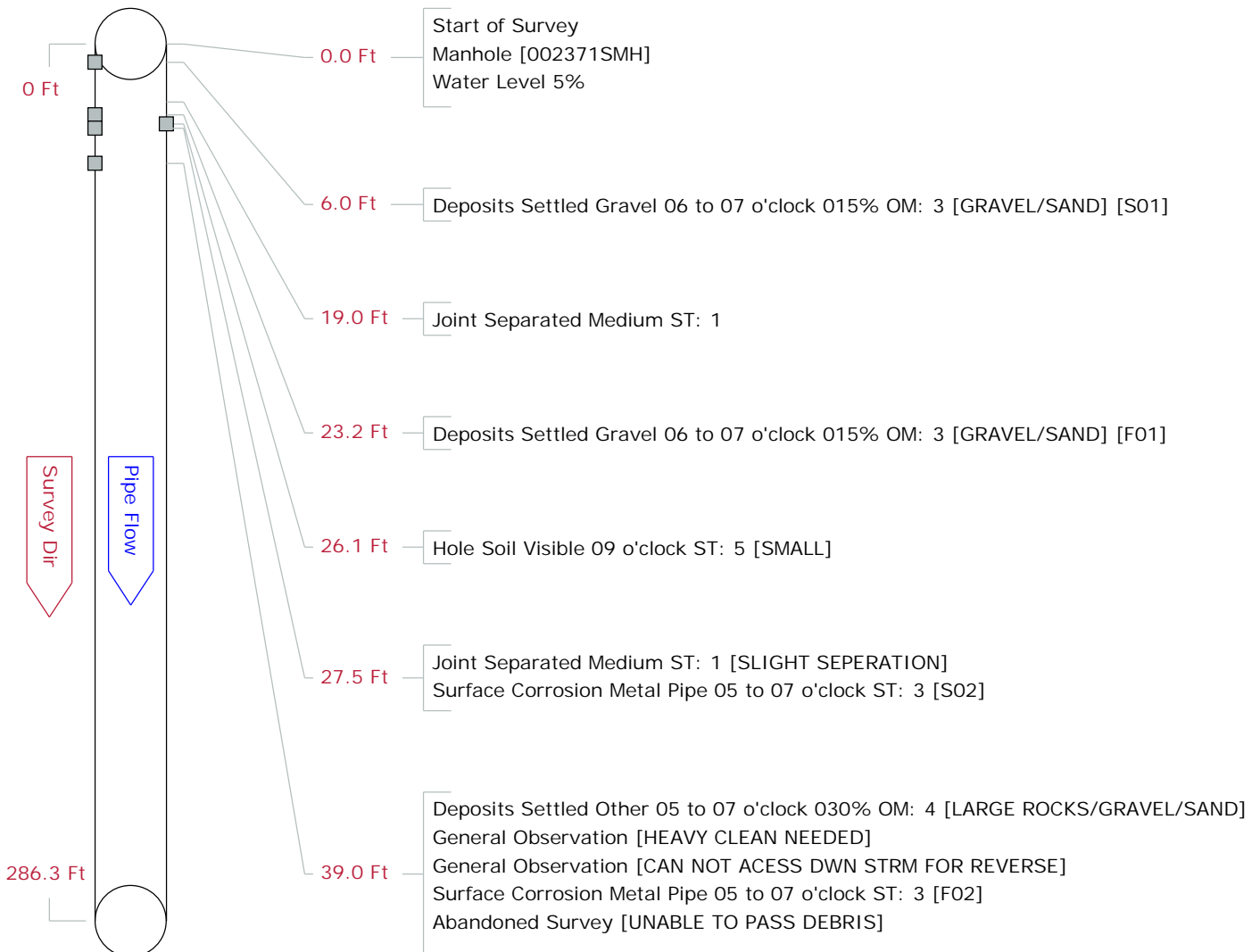
Setup	12	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	POTOMAC RI	Survey Customer	CH2M HILL				
P/O #		Date	2012/10/01	Time	14:12	Street	701 N.FAIRFAX ST.
City	ALEXANDRIA	Further location details		(INDEX TILE) F-12C LOCATED ON BIKE TRAIL NXT TO TRAIN TRACKS			
Start	002364SMH	Rim to invert	3.00	Grade to invert		Rim to grade	Ft
Finish	002363SMH	Rim to invert	4.20	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-10-1
Shape	Circular	Height	18	Width	ins	Preclean	J
						Year Cleaned	2012/09/28
Material	Corrugated Metal Pipe	Joint length	20.0	Ft	Total length	33.9	Ft
						Length Surveyed	17.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location							
Easement/Right of Way							
Project	CASSCA_CCTV_20120930_20121006_SMU				Work Order		
Northing	Easting		Elevation				
Coordinate System		GPS Accuracy					



Pipe Graphic Report of PSR 007065STMP

for CH2M HILL

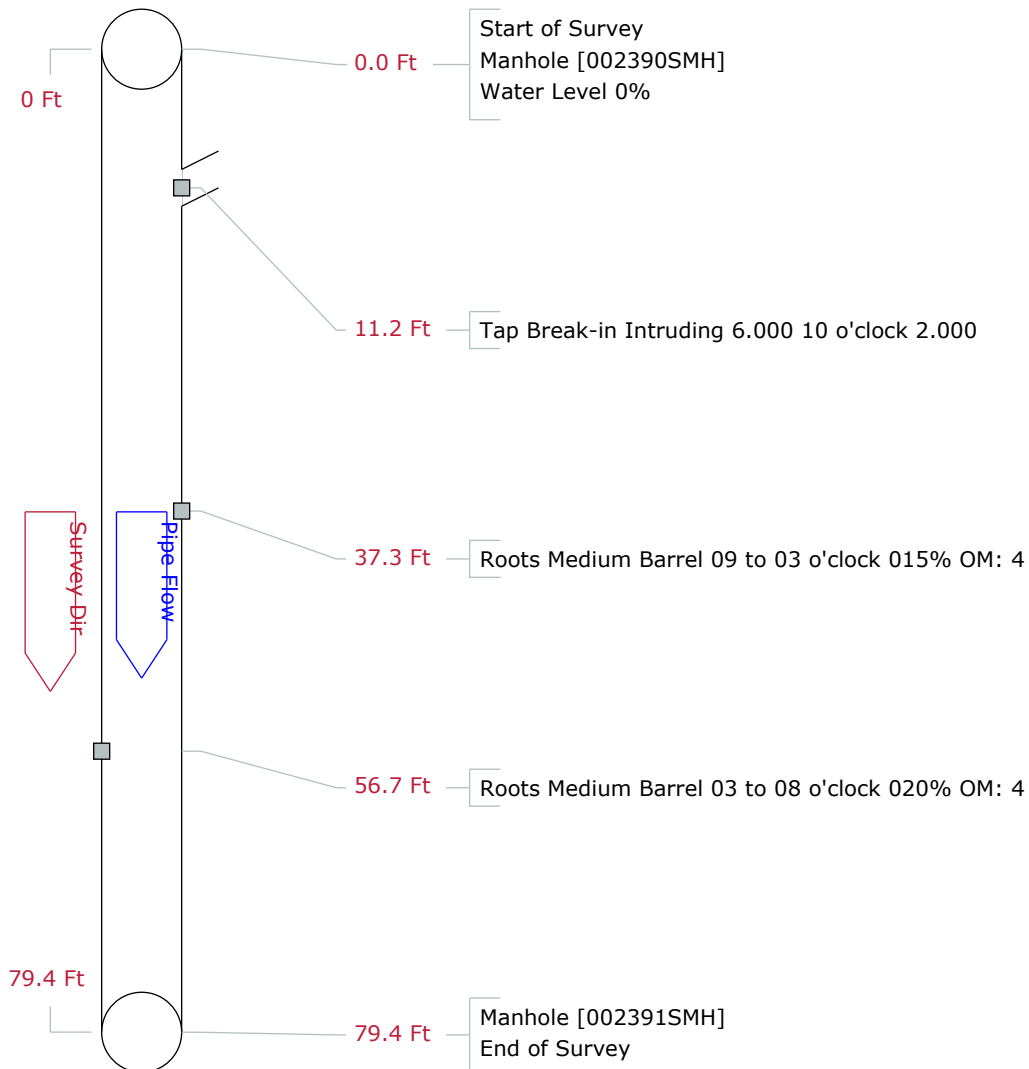
Setup	11	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	POTOMAC RIVER	Survey Customer	CH2M HILL				
P/O #		Date	2012/10/01	Time	11:21	Street	402 BASHFORD LA.
City	ALEXANDRIA	Further location details			(INDEX TILE) E-12c 5126IN LOCATED INSIDE FENCE OF GenOn PLANT		
Start	002371SMH	Rim to invert	2.40	Grade to invert		Rim to grade	Ft
Finish	005126IN	Rim to invert	0.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-10-1
Shape	Circular	Height	15	Width	ins	Preclean	J
Material	Corrugated Metal Pipe	Joint length	20.0	Ft	Total length	286.3	Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info	CAN NOT ACCESS DWN STRM STRUCTURE					Work Order	
Location	Easement/Right of Way						
Project	CASSCA_CCTV_20120930_20121006_SMU						
Northing	Easting						
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 007099STMP

for CH2M HILL

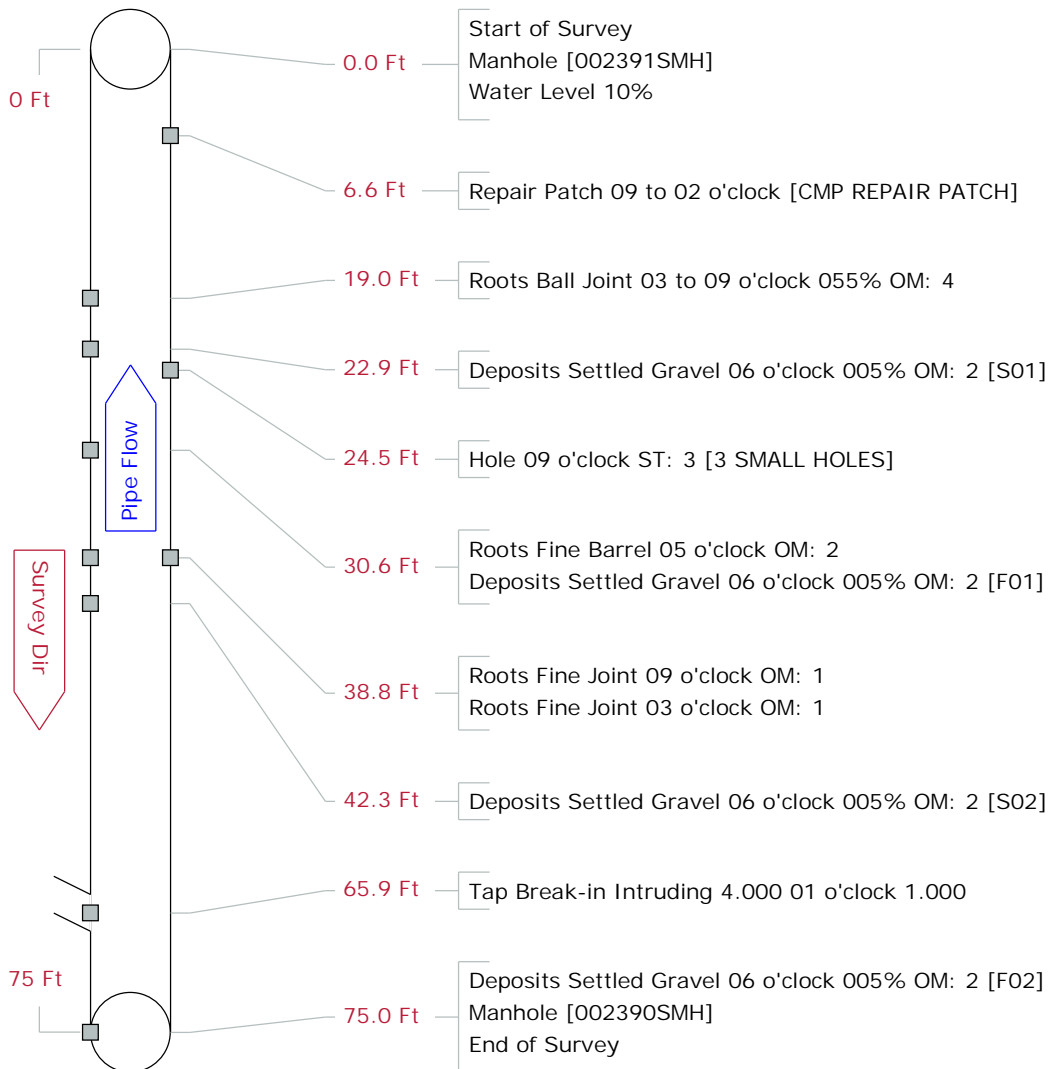
Setup	10	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA
Drainage	POTOMAC RI	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/15	Time	16:43	Street	N FAIRFAX ST.
City	ALEXANDRIA	Further location details					
Start	002390SMH	Rim to invert	3.20	Grade to invert		Rim to grade	Ft
Finish	002391SMH	Rim to invert	3.30	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2MH 4-15
Shape	Circular	Height	15	Width	ins	Preclean J	Year Cleaned 2013/04/15
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	72.4	Ft	Length Surveyed 79.40
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info							
Location				Light Highway			
Project				CCTV_20130414_20130420_EC			
Northing				Easting			
Coordinate System				Elevation			
				GPS Accuracy			
				Work Order -			



Pipe Graphic Report of PSR 007099STMP

for CH2M HILL

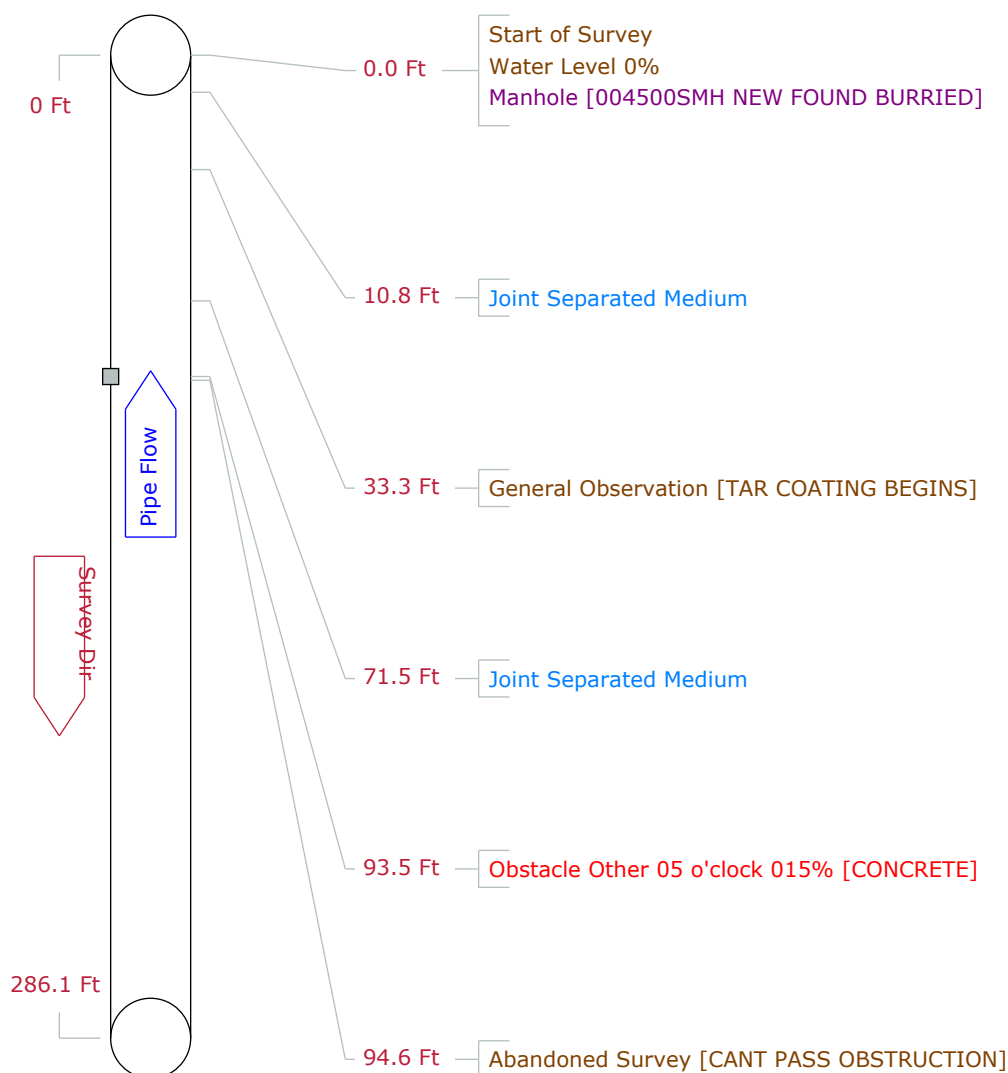
Setup	10	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	POTOMAC RI	Survey Customer	CH2M HILL				
P/O #		Date	2012/10/01	Time	12:41	Street	1000 N.FAIRFAX ST.
City	ALEXANDRIA	Further location details (INDEX TILE) F-12a					
Start	002391SMH	Rim to invert	3.00	Grade to invert		Rim to grade	Ft
Finish	002390SMH	Rim to invert	2.50	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-10-1
Shape	Circular	Height	15	Width	ins	Preclean	J
						Year Cleaned	2012/09/28
Material	Corrugated Metal Pipe	Joint length	20.0	Ft	Total length	72.4	Ft
						Length Surveyed	75.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location	Light Highway						
Project	CASSCA_CCTV_20120930_20121006_SMU	Work Order					
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 009396STMP

for CH2M HILL

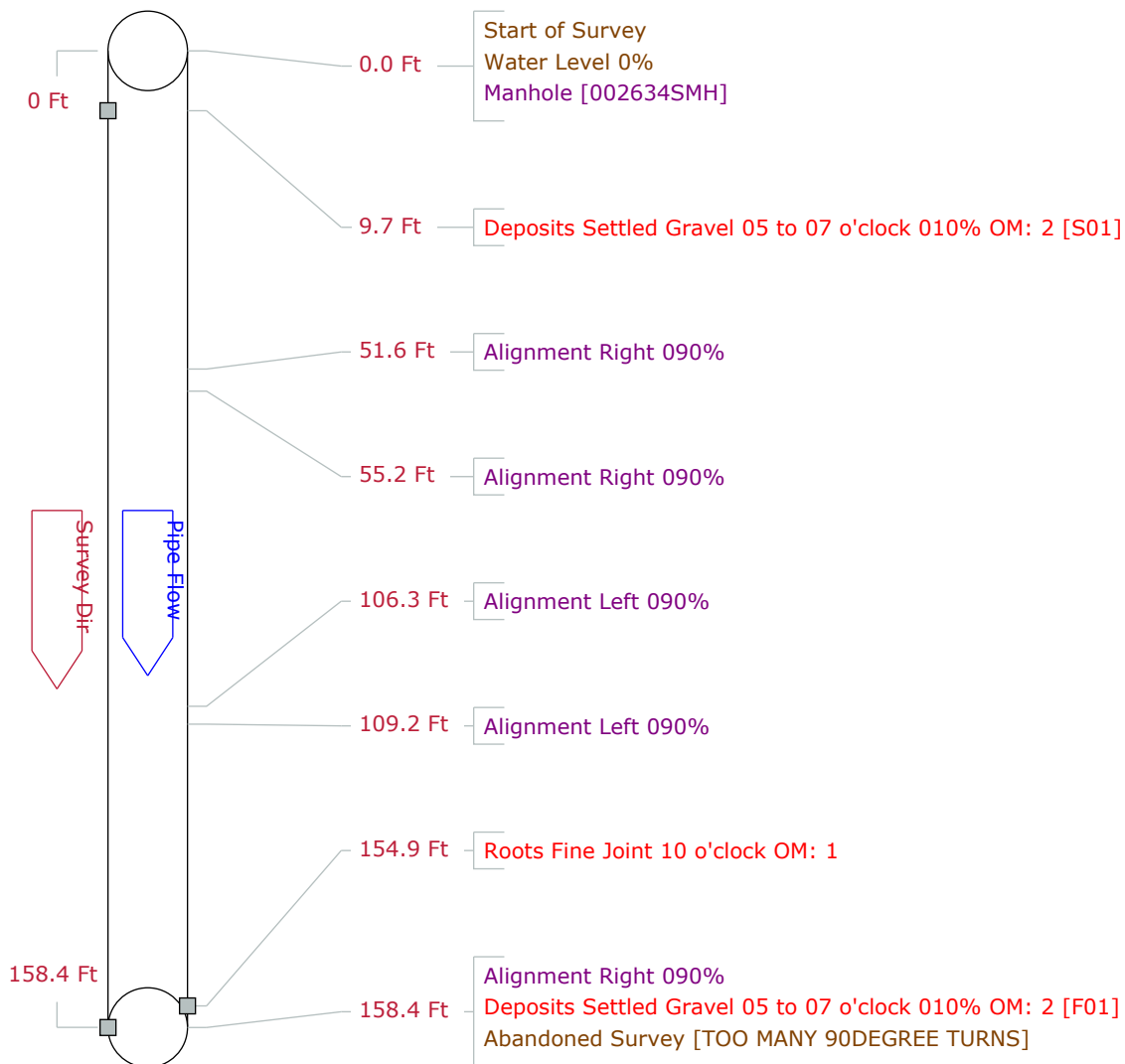
Setup	5	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/07/17	Time	10:49	Street	501 RICHARDS LN.
City	ALEXANDRIA	Further location details (INDEX TILE)D-9C					
Start	004500SMH	Rim to invert	0.00	Grade to invert		Rim to grade	Ft
Finish	002633SMH	Rim to invert	7.50	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-7-17
Shape	Circular	Height	24	Width	24 ins	Preclean	J
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	286.1	Ft
Lining		Year laid		Year rehabilitated		Length Surveyed	94.60
Purpose	Maintenance Related			Weather	Dry		
Additional info	LIGHT CLEAN,,DWN STRM MH IS NEWLY FOUND & BURRIED					Structural	O&M
Location	Light Highway					Miscellaneous	Hydraulic
Project	CASSCA_CCTV_20120715_20120721_SMU					Work Order	
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 007739STMP

for CH2MHILL

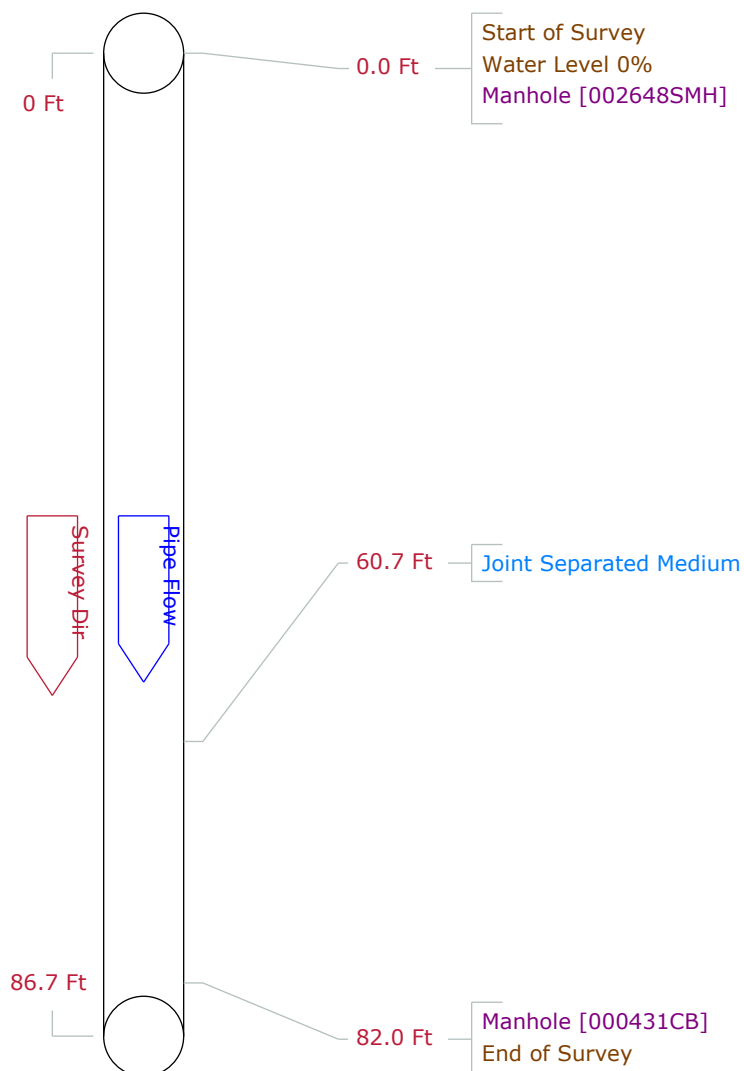
Setup	2	Surveyor	JAW	Certificate #	U-1209-9946	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFFS RUN	Survey Customer	CH2MHILL				
P/O #	946299	Date	2012/07/24	Time	13:58	Street	501 RICHARDS AVE
City	ALEXANDRIA	Further location details					
Start	002634SMH	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	002636SMH	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH72412
Shape	Circular	Height	48	Width	ins	Preclean	N
Material	Corrugated Metal Pipe	Joint length	10.0	Ft	Total length	53.6	Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info						Structural	O&M
Location						Miscellaneous	Hydraulic
Project						Work Order	
Northing						Elevation	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 009058STMP

for CH2M HILL

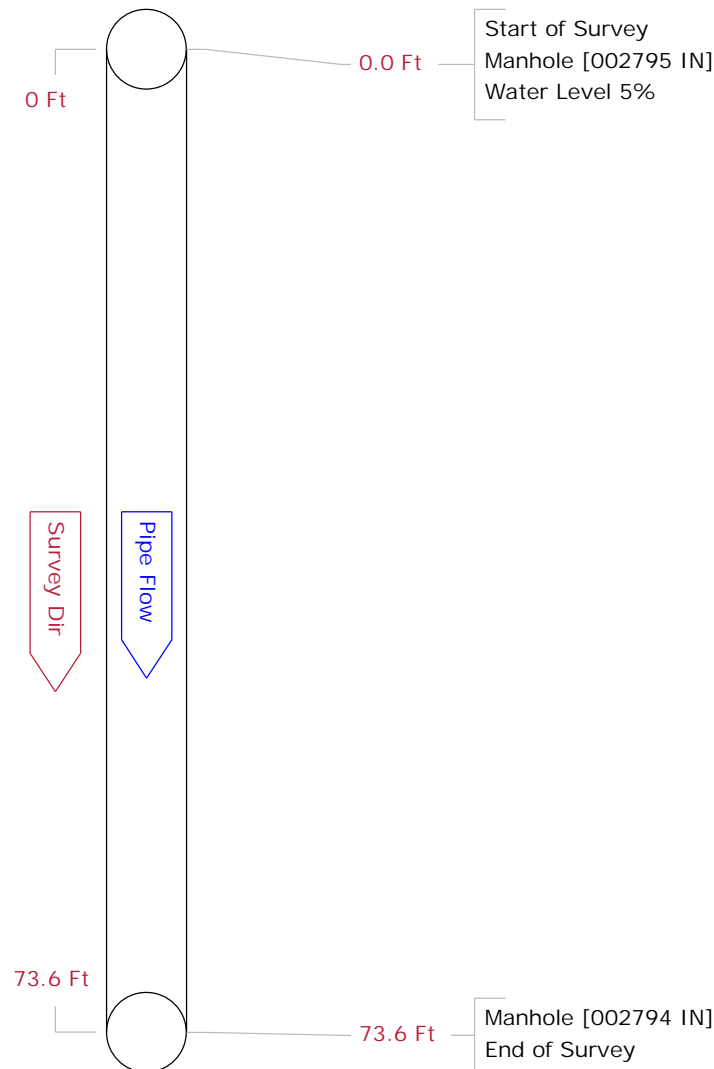
Setup	6	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/07/17	Time	12:27	Street	2316 VALLEY DR.
City	ALEXANDRIA	Further location details (INDEX TILE)D-8A					
Start	002648SMH	Rim to invert	2.50	Grade to invert		Rim to grade	Ft
Finish	000431CB	Rim to invert	5.20	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-7-17
Shape	Circular	Height	18	Width	18 ins	Preclean	J Year Cleaned 2012/07/17
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	86.7	Ft Length Surveyed 82.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info	LIGHT CLEAN	<div> <div>Structural</div> <div>O&M</div> <div>Constructional</div> </div>					
Location	Sidewalk	<div> <div>Miscellaneous</div> <div>Hydraulic</div> </div>					
Project	CASSCA_CCTV_20120715_20120721_SMU	Work Order					
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 002795IN

for CH2MHILL

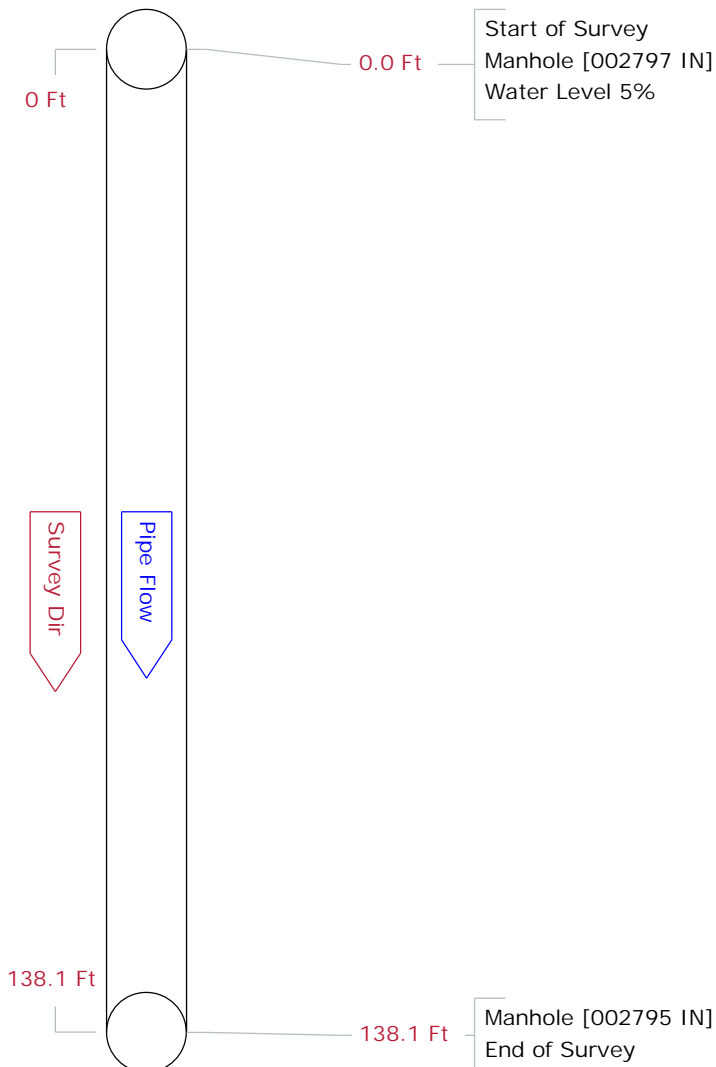
Setup 3	Surveyor GTT	Certificate # U-207-4469	System Owner ALEXANDERA VA
Drainage FOUR MILE R	Survey Customer CH2MHILL		
P/O # 004471STMP	Date 2012/08/23	Time 14:01	Street N ASHTON ST
City ALEXANDERA	Further location details		
Start 002795IN	Rim to invert	Grade to invert	Rim to grade Ft
Finish 002794IN	Rim to invert	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Downstream	Flow control	Media No 1
Shape Circular	Height 24	Width ins	Preclean H
Material Corrugated Metal Pipe	Joint length	Ft	Total length Ft
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Post Rehabilitation Survey	Cat		
Additional info			
Location Light Highway			
Project CASSCA_CCTV_20120819_20120825_GTT		Work Order	
Northing	Easting	Elevation	
Coordinate System		GPS Accuracy	



Pipe Graphic Report of PSR 002797IN

for CH2MHILL

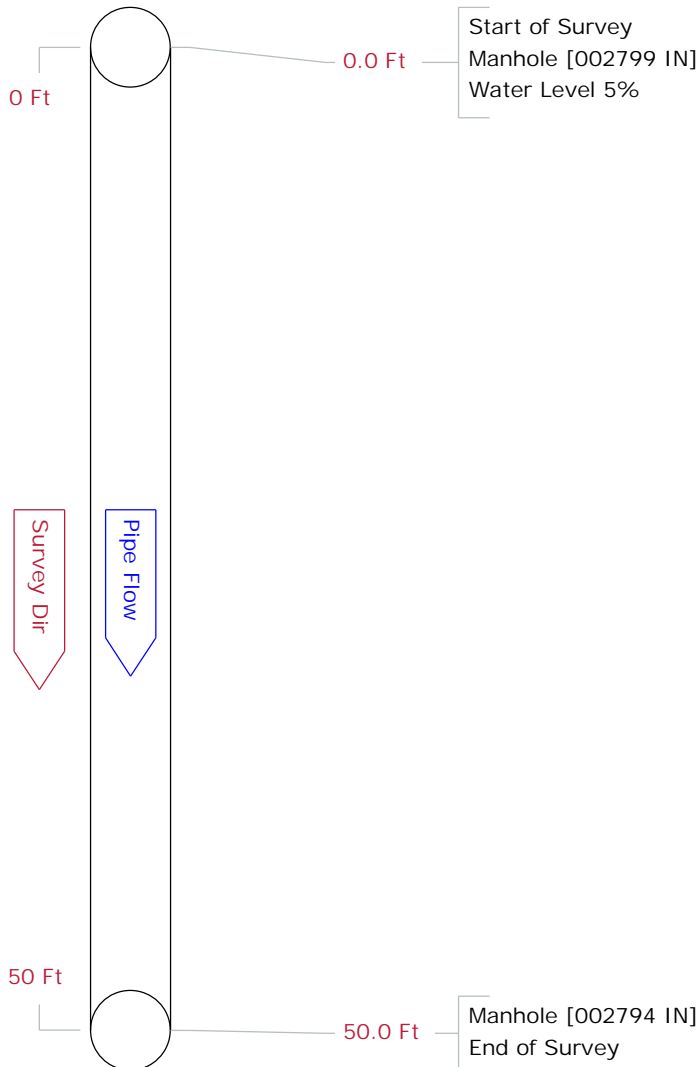
Setup	2	Surveyor	GTT	Certificate #	U-207-4469	System Owner	ALEXANDERA VA
Drainage	FOUR MILE R	Survey Customer	CH2MHILL				
P/O #	004471STMP	Date	2012/08/23	Time	13:17	Street	6008 NAGY PL
City	ALEXANDERA	Further location details					
Start	002797IN	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	002795IN	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control		Media No	1
Shape	Circular	Height	18	Width	ins	Preclean	H
						Year Cleaned	2012/08/23
Material	Corrugated Metal Pipe	Joint length		Ft	Total length	Ft	Length Surveyed 138.10
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Post Rehabilitation Survey			Cat			
Additional info							
Location	Light Highway						
Project	CASSCA_CCTV_20120819_20120825_GTT					Work Order	
Northing			Easting		Elevation		
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 002799IN

for CH2MHILL

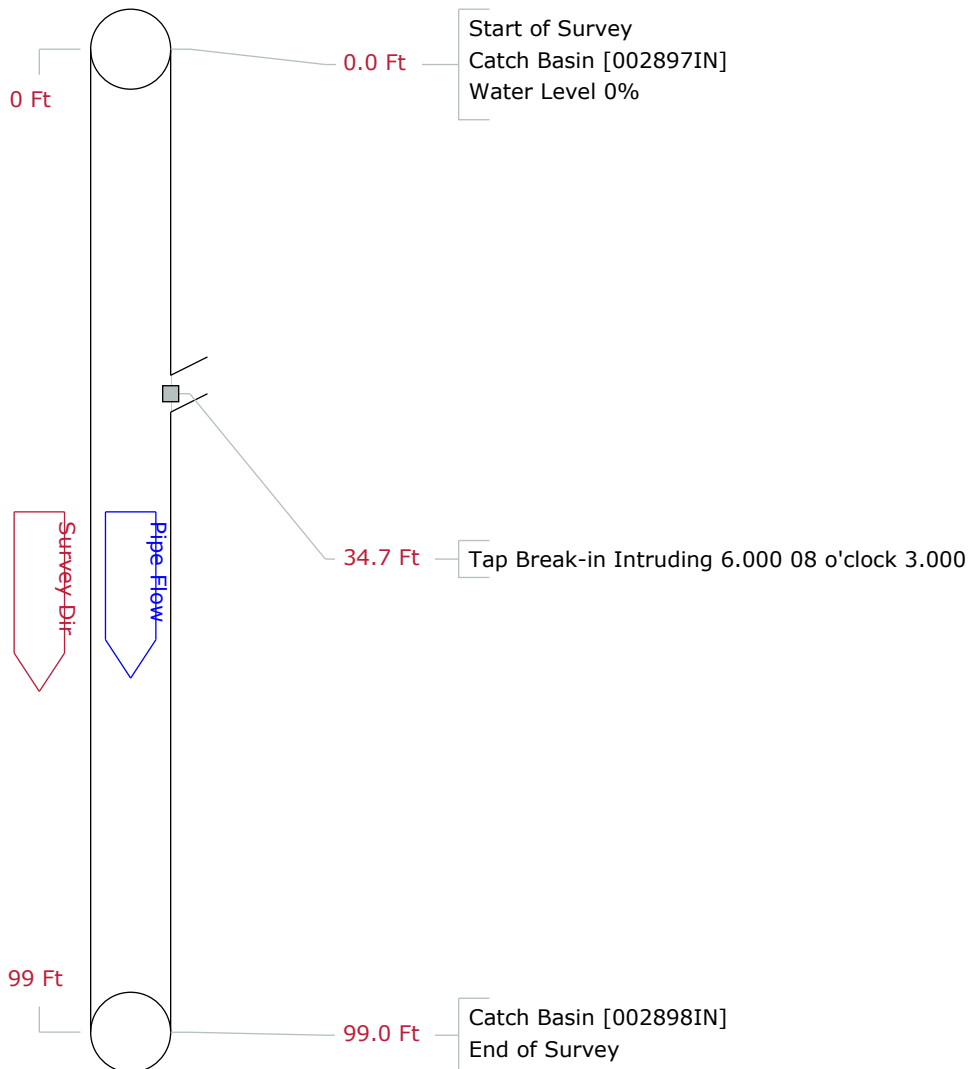
Setup 4	Surveyor GTT	Certificate # U-207-4469	System Owner ALEXANDERA VA
Drainage FOUR MILE R	Survey Customer CH2MHILL		
P/O # 004471STMP	Date 2012/08/23	Time 14:15	Street 830 N ASHTON ST
City ALEXANDERA	Further location details		
Start 002799IN	Rim to invert	Grade to invert	Rim to grade Ft
Finish 002794IN	Rim to invert	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Downstream	Flow control	Media No 1
Shape Circular	Height 15	Width ins	Year Cleaned 2012/08/23
Material Corrugated Metal Pipe	Joint length Ft	Total length Ft	Length Surveyed 50.00
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Post Rehabilitation Survey	Cat		
Additional info			
Location Light Highway			
Project CASSCA_CCTV_20120819_20120825_GTT		Work Order	
Northing	Easting	Elevation	
Coordinate System		GPS Accuracy	



Pipe Graphic Report of PSR 004591STMP

for CH2M HILL

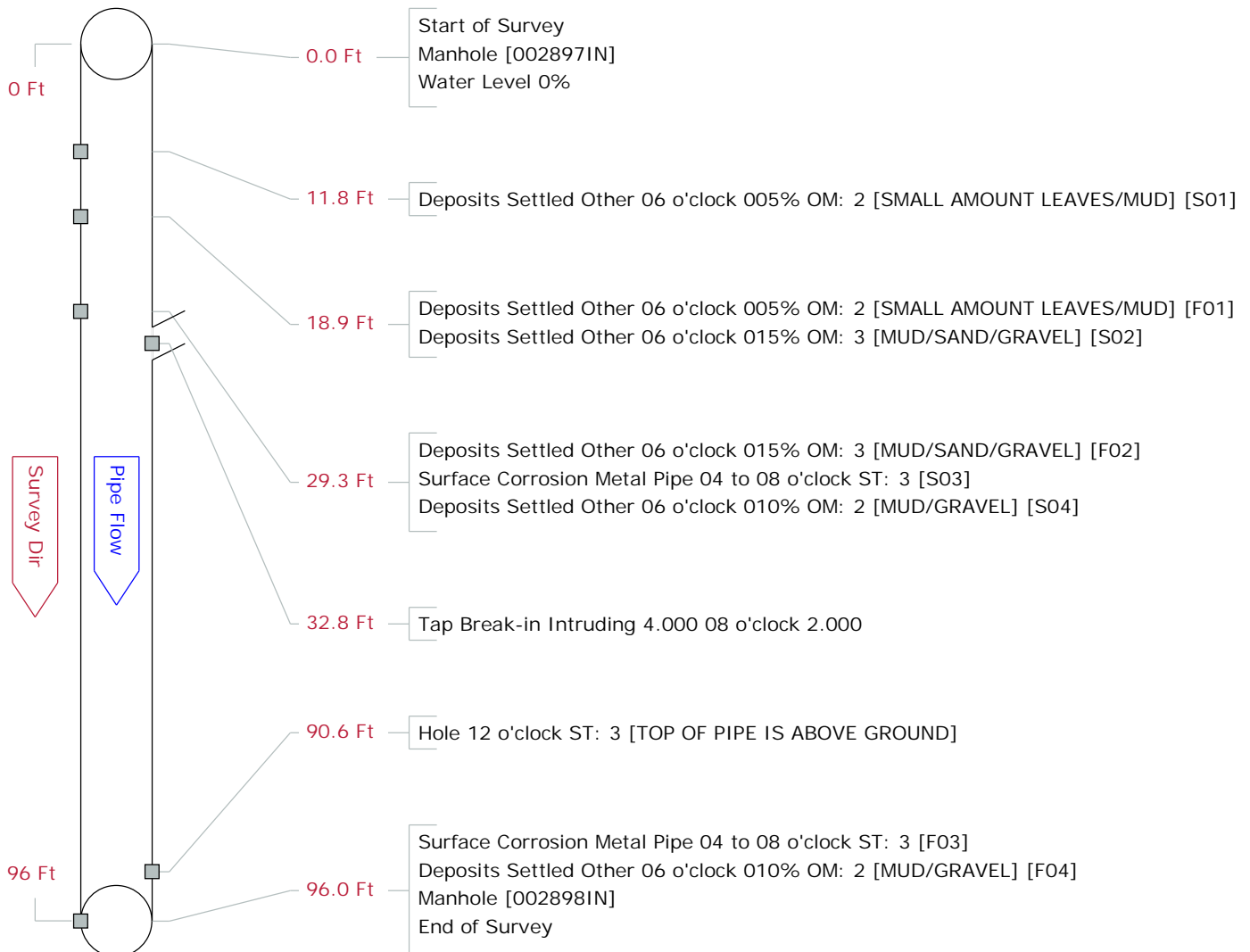
Setup	5	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA VA.
Drainage	STRAWBERRY	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/11	Time	14:21	Street	SEMINARY RD.
City	ALEXANDRIA, VA	Further location details					
Start	002897IN	Rim to invert	3.80	Grade to invert		Rim to grade	Ft
Finish	002898IN	Rim to invert	2.60	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2MH 4-11
Shape	Circular	Height	24	Width	ins	Preclean	N
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	95.6	Ft	Length Surveyed 99.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info							
Location				Sidewalk			
Project				CCTV_20130407_20130413_EC			
Northing				Easting			
Coordinate System				GPS Accuracy			
				Work Order -			



Pipe Graphic Report of PSR 004591STMP

for CH2M HILL

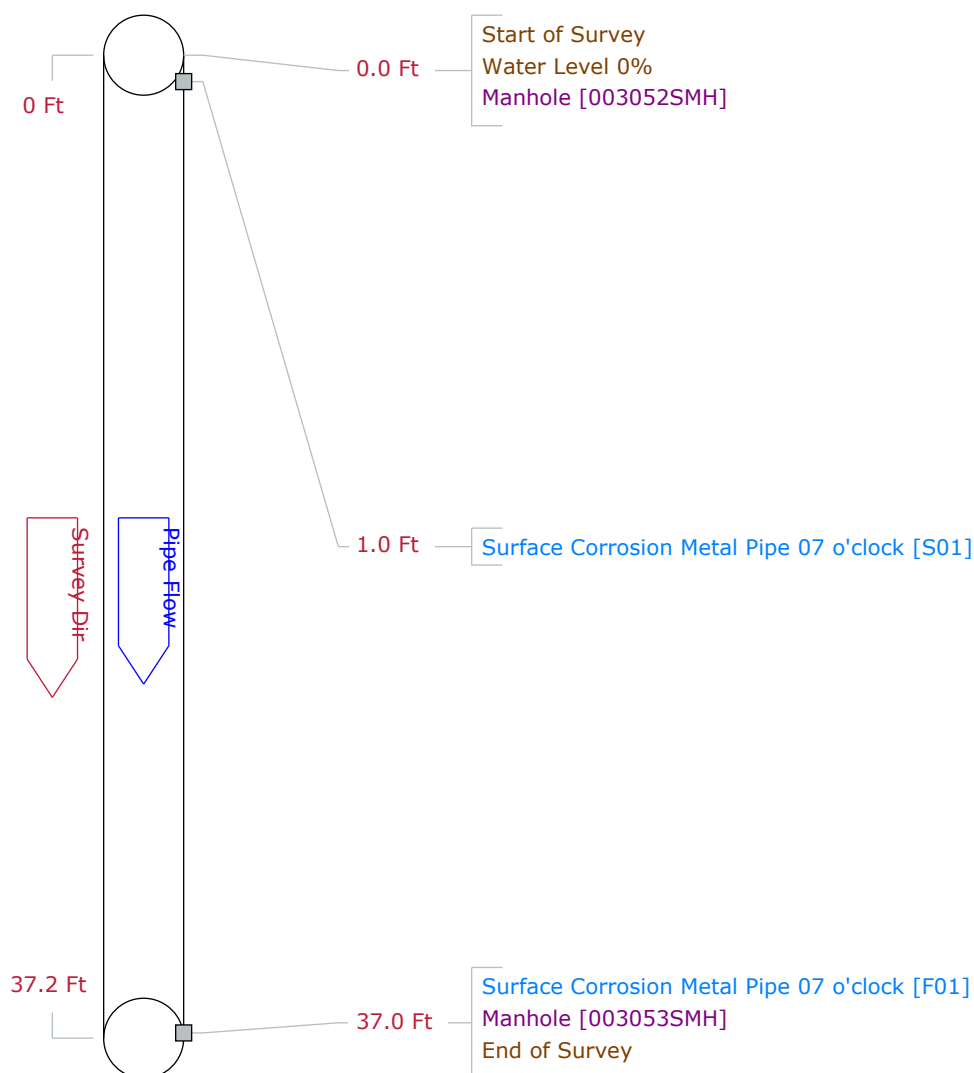
Setup	20	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA				
Drainage	STRAWBERR'			Survey Customer	CH2M HILL						
P/O #		Date	2012/10/16	Time	8:25	Street	3737 SEMINARY RD.				
City	ALEXANDRIA		Further location details (INDEX TILE) E-6a ON GROUNDS OF EPISCOPAL SEMINARY								
Start	002897IN			Rim to invert	3.90	Grade to invert	Rim to grade	Ft			
Finish	002898IN			Rim to invert	2.70	Grade to invert	Rim to grade	Ft			
Use	Stormwater			Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-10-16		
Shape	Circular			Height	24	Width	ins	Preclean	J	Year Cleaned	2012/10/16
Material	Corrugated Metal Pipe			Joint length	20.0	Ft	Total length	95.6	Ft	Length Surveyed	96.00
Lining				Year laid	Year rehabilitated			Weather	Dry		
Purpose	Maintenance Related			Cat							
Additional info	11ft.PIECE OF PIPE PARTIALY EXPOSED ABOVE GROUND										
Location	Light Highway										
Project	CASSCA_CCTV_20121014-20121020_SMU										
Northing				Easting				Elevation	Work Order		
Coordinate System							GPS Accuracy				



Pipe Graphic Report of PSR 010103STMP

for CH2M HILL

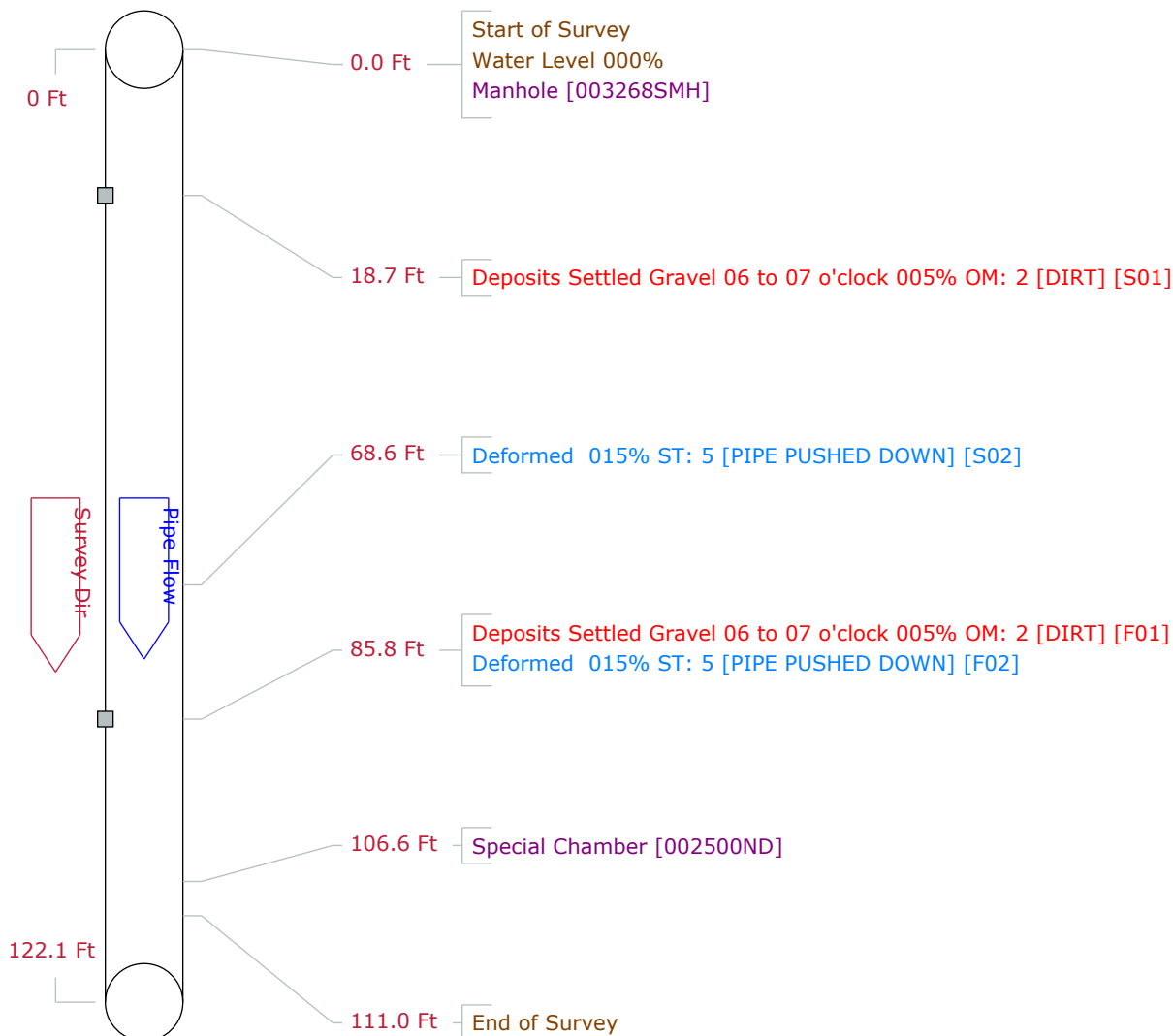
Setup	12	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/07/18	Time	10:25	Street	1024 N.HENRY ST.
City	ALEXANDRIA	Further location details (INDEX TILE)E-11C					
Start	003052SMH	Rim to invert	3.00	Grade to invert		Rim to grade	Ft
Finish	003053SMH	Rim to invert	4.20	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-7-18
Shape	Egg Shaped	Height	18	Width	24 ins	Preclean	J
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	37.2	Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info	LIGHT CLEAN					Structural	O&M
Location	Light Highway					Miscellaneous	Hydraulic
Project	CASSCA_CCTV_20120715_20120721_SMU					Constructional	
Northing		Easting		Elevation		Work Order	
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 014552STMP

for CH2MHILL

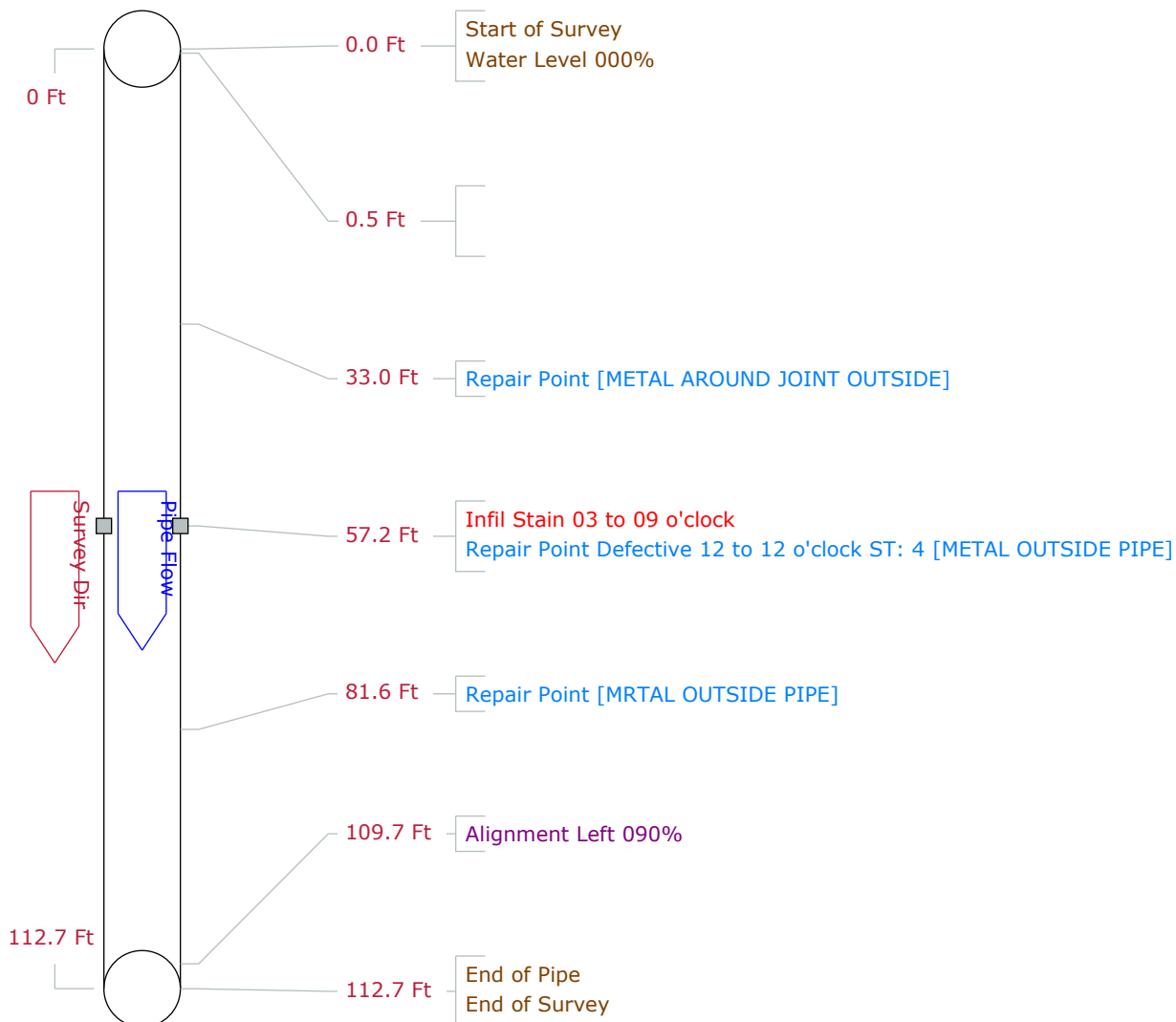
Setup	3	Surveyor	JAW	Certificate #	U-1209-9946	System Owner	CITY OF ALEXANDRIA			
Drainage	HOOFFS RUN			Survey Customer	CH2MHILL					
P/O #	946299	Date	2012/07/24	Time	16:20	Street	1501 CAMERON ST			
City	ALEXANDRIA		Further location details							
Start	003268SMH		Rim to invert		Grade to invert		Rim to grade	Ft		
Finish	002500ND		Rim to invert		Grade to invert		Rim to grade	Ft		
Use	Stormwater		Direction	Downstream	Flow control	Not Controlled		Media No	CH72412	
Shape	Circular		Height	48	Width	ins	Preclean	J	Year Cleaned	2012/07/24
Material	Corrugated Metal Pipe		Joint length	10.0	Ft	Total length	122.1	Ft	Length Surveyed	111.00
Lining			Year laid	Year rehabilitated			Weather	Dry		
Purpose	Maintenance Related			Cat						
Additional info						Structural	O&M	Constructional		
Location	Easement/Right of Way					Miscellaneous	Hydraulic			
Project	CASSA_CCTV_20120722_20120728_DB					Work Order				
Northing	Easting			Elevation						
Coordinate System					GPS Accuracy					



Pipe Graphic Report of PSR 009927STMP

for CH2MHILL

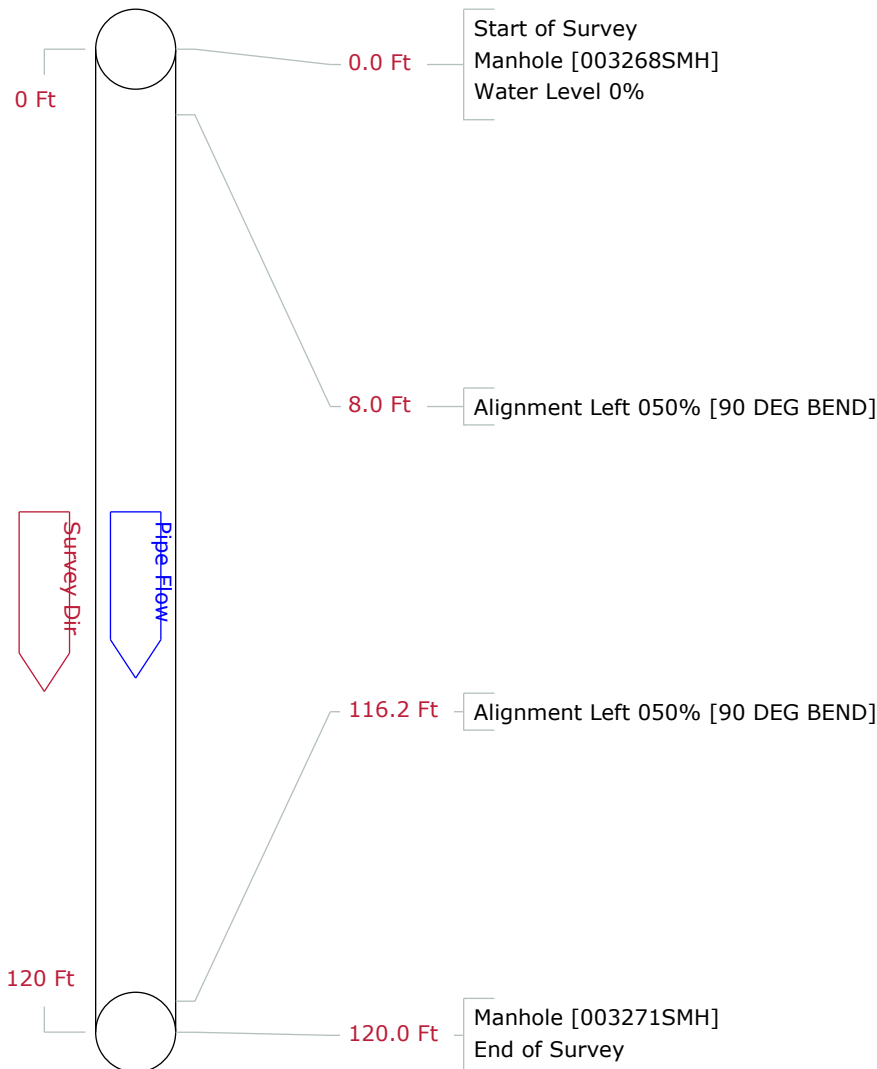
Setup	7	Surveyor	JAW	Certificate #	U-1209-9946	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFFS RUN	Survey Customer	CH2MHILL				
P/O #	946299	Date	2012/07/26	Time	8:26	Street	1614 BOYLE ST
City	ALEXANDRIA	Further location details					
Start	003268SMH	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	002500ND	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH72612
Shape	Circular	Height	48	Width	0 ins	Preclean	J Year Cleaned 2012/07/24
Material	Corrugated Metal Pipe	Joint length	10.0 Ft	Total length	55.1 Ft	Length Surveyed	112.70
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info						Structural	O&M
Location						Miscellaneous	Hydraulic
Project						Work Order	
Northing						Elevation	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 009927STMP

for CH2M HILL

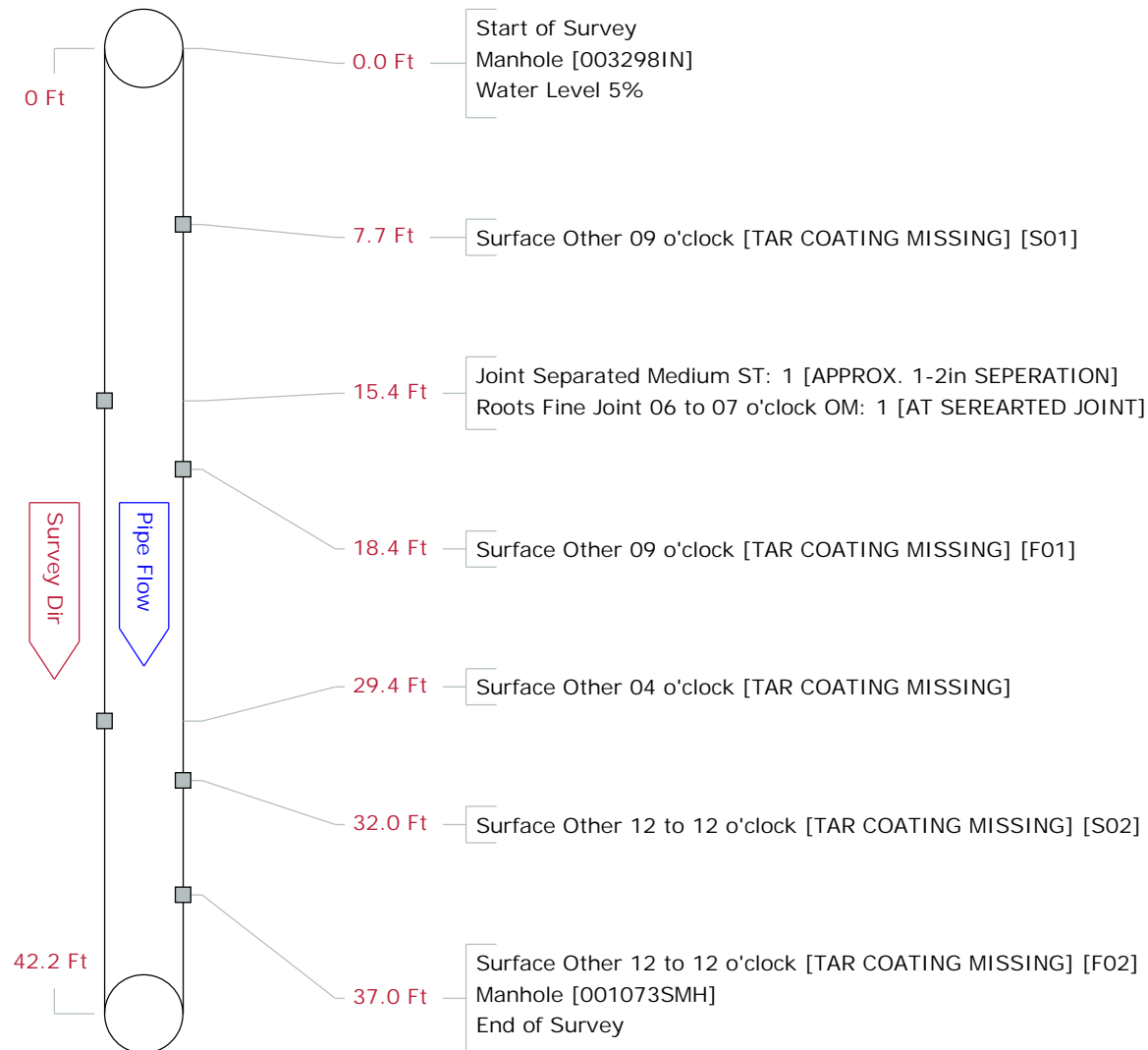
Setup	8	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/15	Time	15:12	Street	1501 CAMERON ST.
City	ALEXANDRIA	Further location details MAY GO TO 003271SMH AND 000934 MAY NOT EXIST					
Start	003268SMH	Rim to invert	8.20	Grade to invert		Rim to grade	Ft
Finish	000934ND	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2MH 4-15
Shape	Circular	Height	36	Width	ins	Preclean	N
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	55.1	Ft	Length Surveyed
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info	REAR OF SCHOOL BY BASKETBALL COURT						
Location	Sidewalk						
Project	CCTV_20130414_20130420_EC					Work Order	-
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 005294STMP

for CH2M HILL

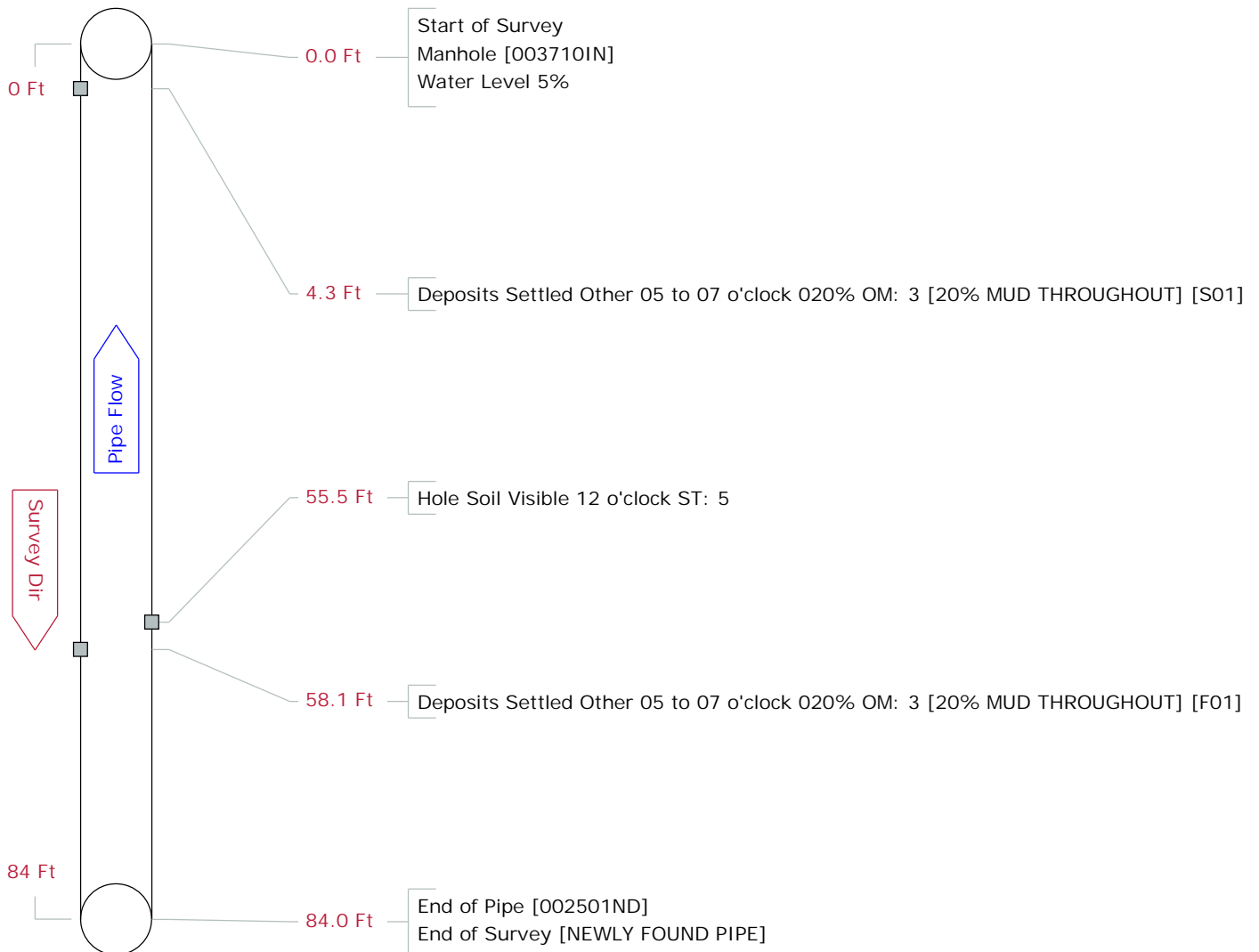
Setup	24	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA				
Drainage	HOLMES RUN			Survey Customer	CH2M HILL						
P/O #		Date	2012/09/25	Time	7:50	Street	633 N.RIPLEY ST.				
City	ALEXANDRIA			Further location details (INDEX TILE) E-3a							
Start	003298IN			Rim to invert	2.00	Grade to invert	Rim to grade	Ft			
Finish	001073SMH			Rim to invert	6.60	Grade to invert	Rim to grade	Ft			
Use	Stormwater			Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-9-25		
Shape	Circular			Height	15	Width	ins	Preclean	J	Year Cleaned	2012/09/25
Material	Corrugated Metal Pipe			Joint length	18.0	Ft	Total length	42.2	Ft	Length Surveyed	37.00
Lining				Year laid	Year rehabilitated			Weather	Dry		
Purpose	Maintenance Related			Cat							
Additional info	PIPE CROSSES UNDER N.RIPLEY ST.										
Location	Light Highway										
Project	CASSCA_CCTV_20120923_20120929_SMU						Work Order				
Northing				Easting				Elevation			
Coordinate System							GPS Accuracy				



Pipe Graphic Report of PSR 014553STMP

for CH2M HILL

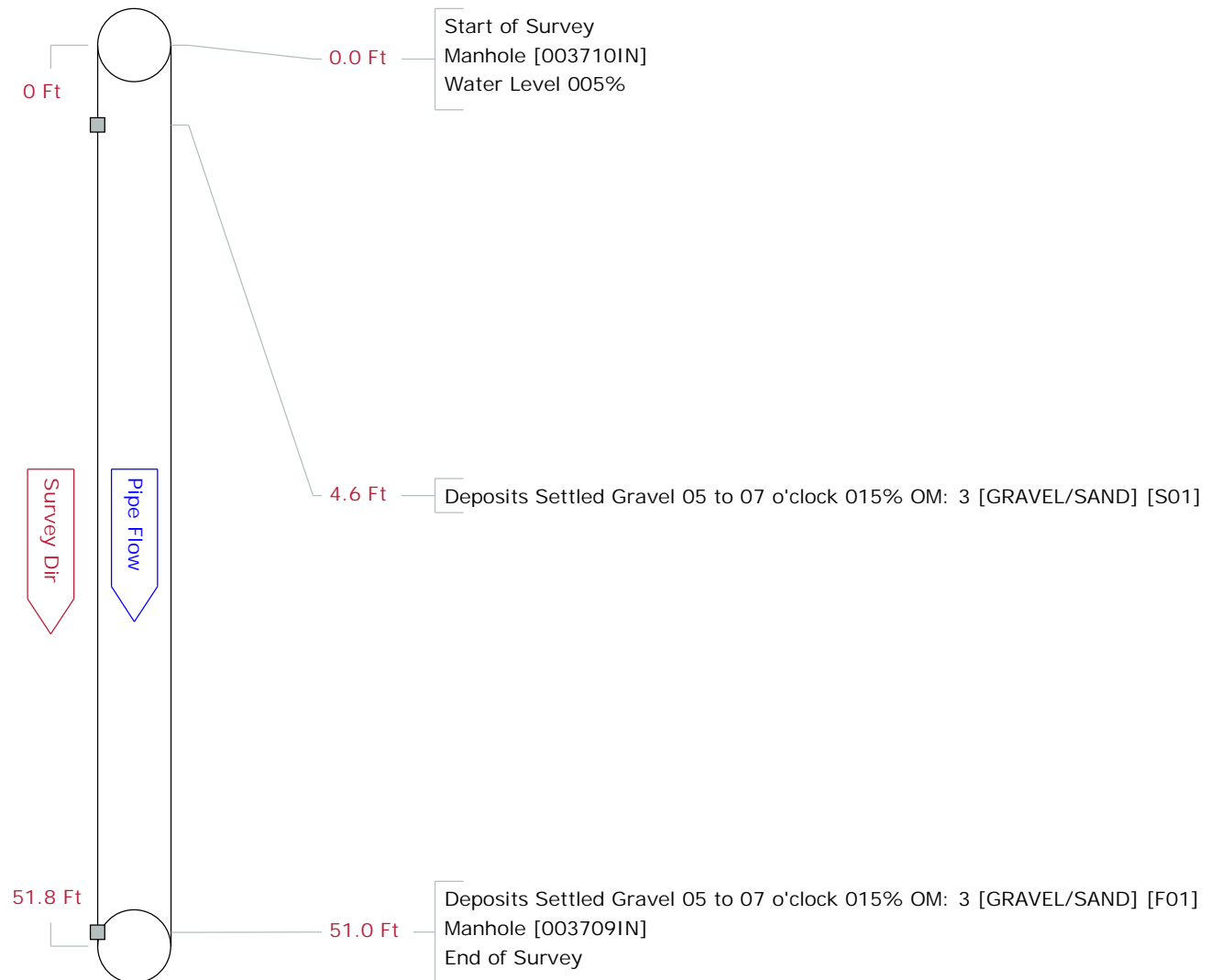
Setup	22	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOLMES RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/09/24	Time	11:02	Street	1600 CHAPEL HILL DR.
City	ALEXANDRIA	Further location details (INDEX TILE) D-5d					
Start	003710IN	Rim to invert	3.80	Grade to invert		Rim to grade	Ft
Finish	002501ND	Rim to invert	0.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-9-24
Shape	Arched	Height	27	Width	43 ins	Preclean	J
						Year Cleaned	2012/09/24
Material	Corrugated Metal Pipe	Joint length	18.0	Ft	Total length	84.0	Ft
						Length Surveyed	84.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info	LINE IS NEWLY FOUND,, NOT SHOWN ON MAPS						
Location	Light Highway						
Project	CASSCA_CCTV_20120923_20120929_SMU					Work Order	
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 005434STMP

for CH2M HILL

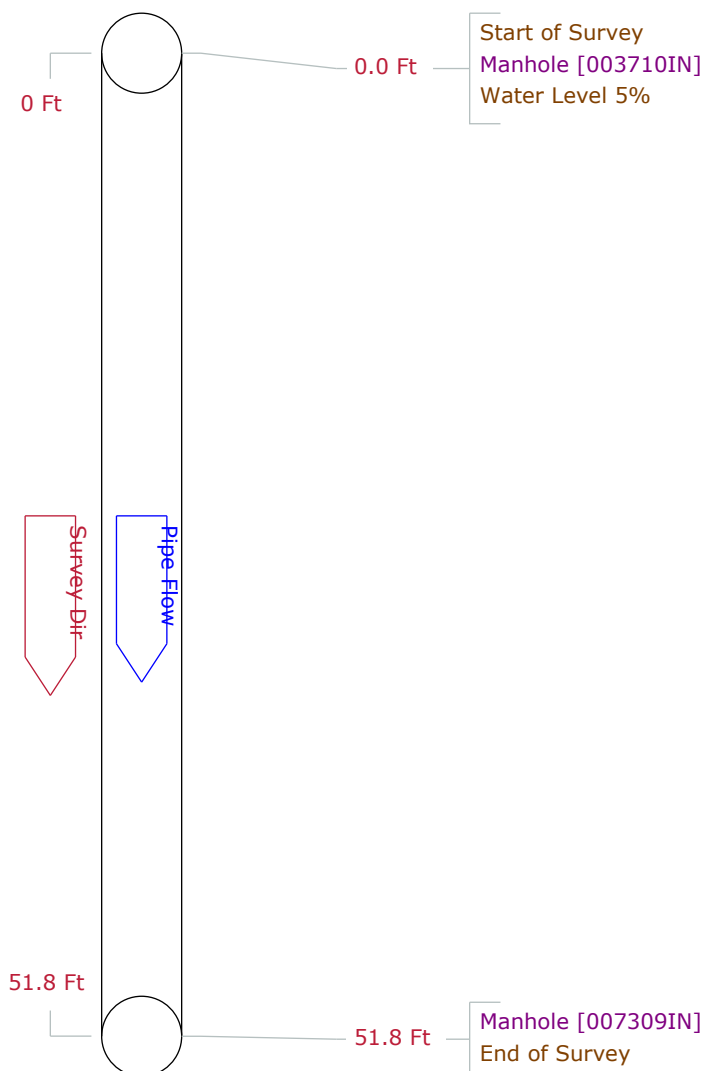
Setup	21	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOLMES RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/09/24	Time	10:31	Street	1600 CHAPEL HILL DR.
City	ALEXANDRIA	Further location details (INDEX TILE) D-5d					
Start	003710IN	Rim to invert	3.80	Grade to invert		Rim to grade	Ft
Finish	003709IN	Rim to invert	3.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-9-24
Shape	Arched	Height	27	Width	43 ins	Preclean	J
						Year Cleaned	2012/09/24
Material	Corrugated Metal Pipe	Joint length	18.0 Ft	Total length	51.8	Ft	Length Surveyed 51.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info	003710IN HAS AN ADDITIONAL INFLUENT ARCHED CMP					Work Order	
Location	Light Highway						
Project	CASSCA_CCTV_20120923_20120929_SMU						
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 005434STMP

for CH2MHILL

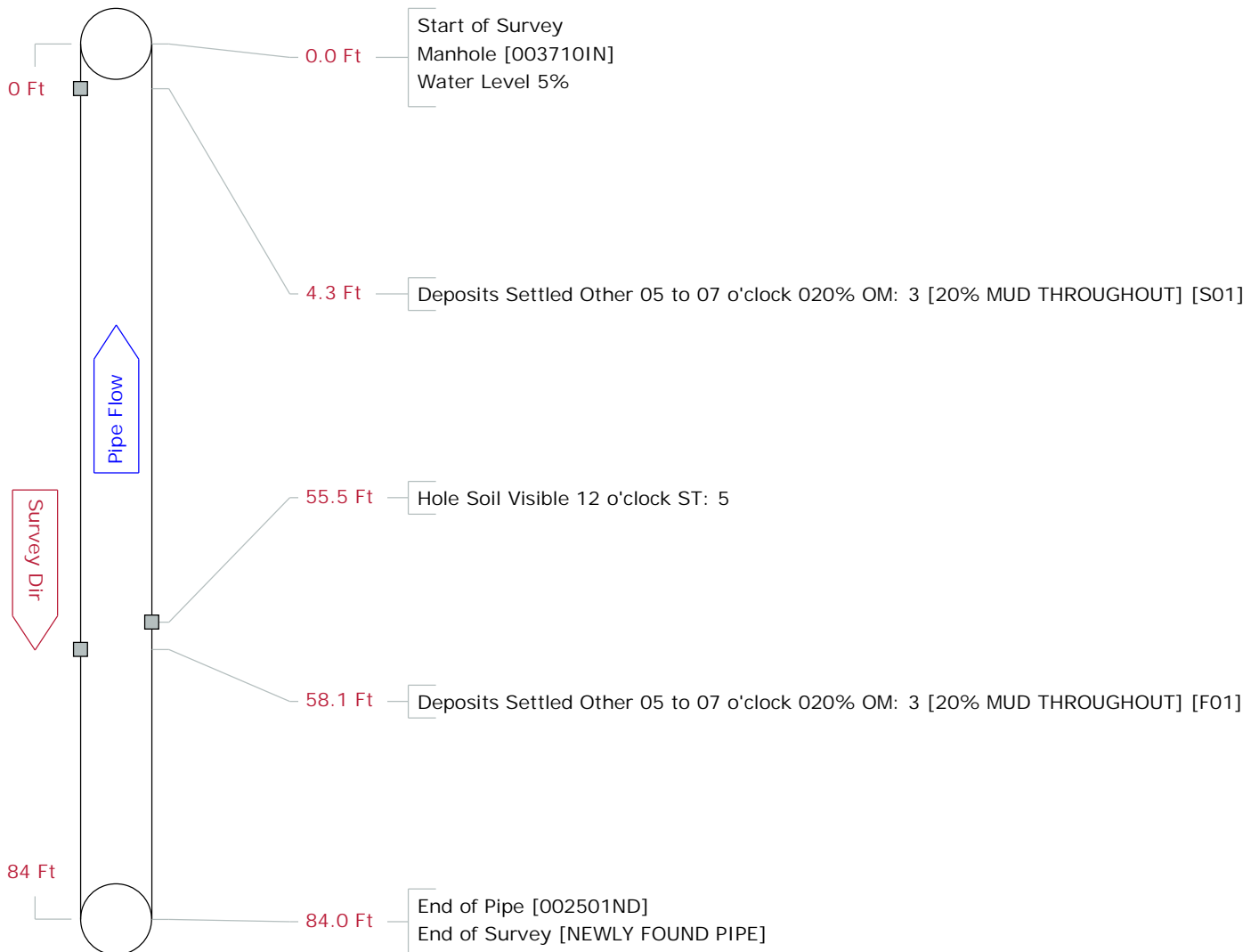
Setup 15	Surveyor GTT	Certificate # U-207-4469	System Owner CITY OF ALEXANDRIA
Drainage	Survey Customer		
P/O #	Date 2012/08/31	Time 13:44	Street 1600 CHAPEL RD
City ALEXANDRIA	Further location details		
Start 003710IN	Rim to invert	Grade to invert	Rim to grade Ft
Finish 007309IN	Rim to invert	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Downstream	Flow control	Media No 1
Shape Arched	Height 72	Width 36 ins	Preclean H Year Cleaned 2012/08/30
Material Corrugated Metal Pipe	Joint length	Ft Total length	Ft Length Surveyed 51.80
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose	Cat		
Additional info		<div> <div>Structural</div> <div>O&M</div> <div>Constructional</div> </div>	
Location Light Highway		<div> <div>Miscellaneous</div> <div>Hydraulic</div> </div>	
Project CASSA_CCTV_20120826_20120901_DB		Work Order	
Northing		Easting	
Coordinate System		Elevation	
		GPS Accuracy	



Pipe Graphic Report of PSR 014553STMP

for CH2M HILL

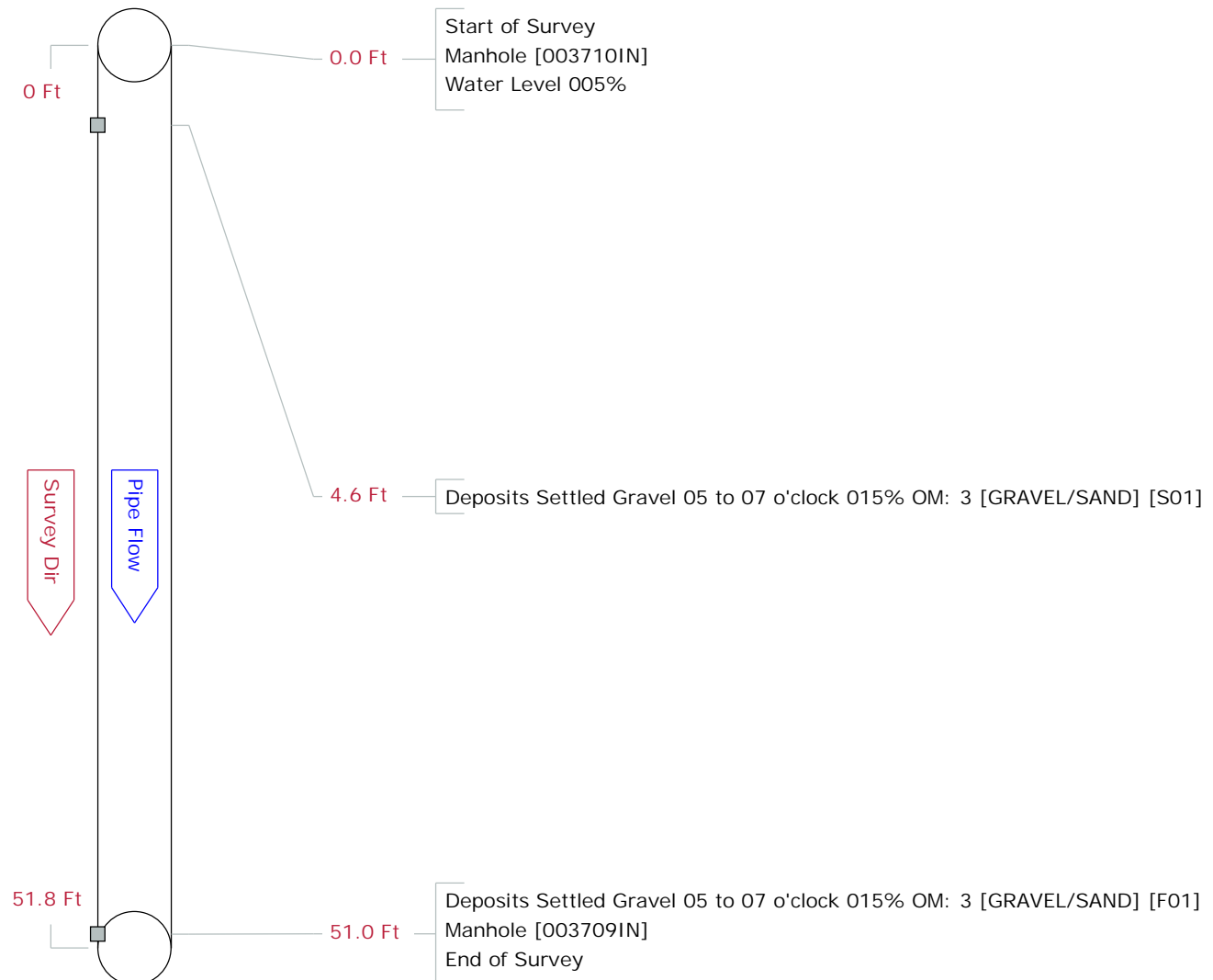
Setup	2	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA					
Drainage	HOLMES RUN			Survey Customer	CH2M HILL							
P/O #		Date	2012/09/24	Time	11:02	Street	1600 CHAPEL HILL DR.					
City	ALEXANDRIA			Further location details (INDEX TILE) D-5d								
Start	003710IN			Rim to invert	3.80	Grade to invert	Rim to grade	Ft				
Finish	002501ND			Rim to invert	0.00	Grade to invert	Rim to grade	Ft				
Use	Stormwater			Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-9-24			
Shape	Arched			Height	27	Width	43 ins	Preclean	J	Year Cleaned	2012/09/24	
Material	Corrugated Metal Pipe			Joint length	18.0	Ft	Total length	84.0	Ft	Length Surveyed	84.00	
Lining				Year laid	Year rehabilitated			Weather	Dry			
Purpose	Maintenance Related			Cat								
Additional info	LINE IS NEWLY FOUND,, NOT SHOWN ON MAPS						Work Order					
Location	Light Highway											
Project	CASSCA_CCTV_20120923_20120929_SMU											
Northing				Easting				Elevation				
Coordinate System							GPS Accuracy					



Pipe Graphic Report of PSR 005434STMP

for CH2M HILL

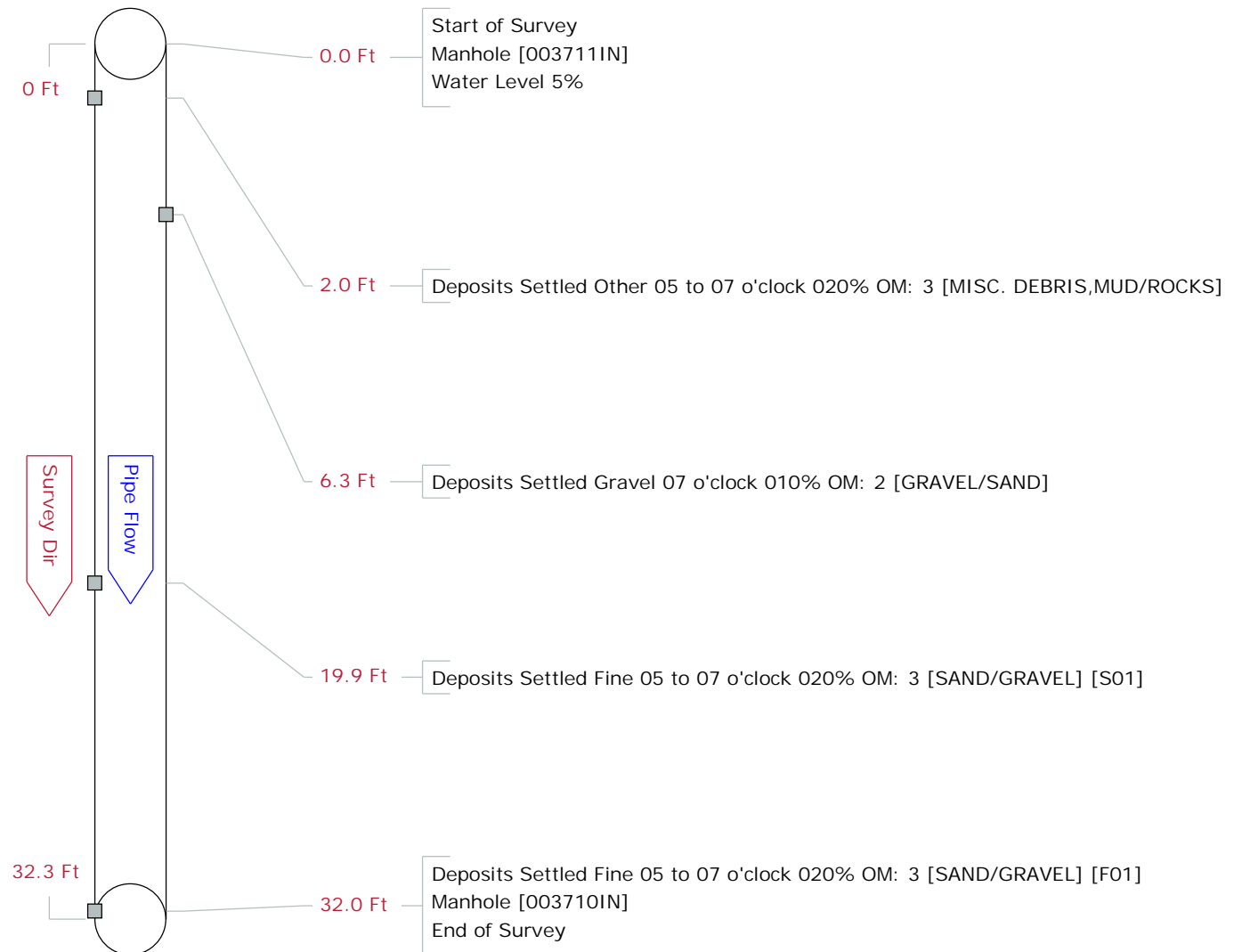
Setup	3	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOLMES RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/09/24	Time	10:31	Street	1600 CHAPEL HILL DR.
City	ALEXANDRIA	Further location details (INDEX TILE) D-5d					
Start	003710IN	Rim to invert	3.80	Grade to invert		Rim to grade	Ft
Finish	003709IN	Rim to invert	3.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-9-24
Shape	Arched	Height	27	Width	43 ins	Preclean	J
						Year Cleaned	2012/09/24
Material	Corrugated Metal Pipe	Joint length	18.0	Ft	Total length	51.8	Ft
						Length Surveyed	51.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info	003710IN HAS AN ADDITIONAL INFLUENT ARCHED CMP						
Location	Light Highway						
Project	CASSCA_CCTV_20120923_20120929_SMU					Work Order	
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 005435STMP

for CH2M HILL

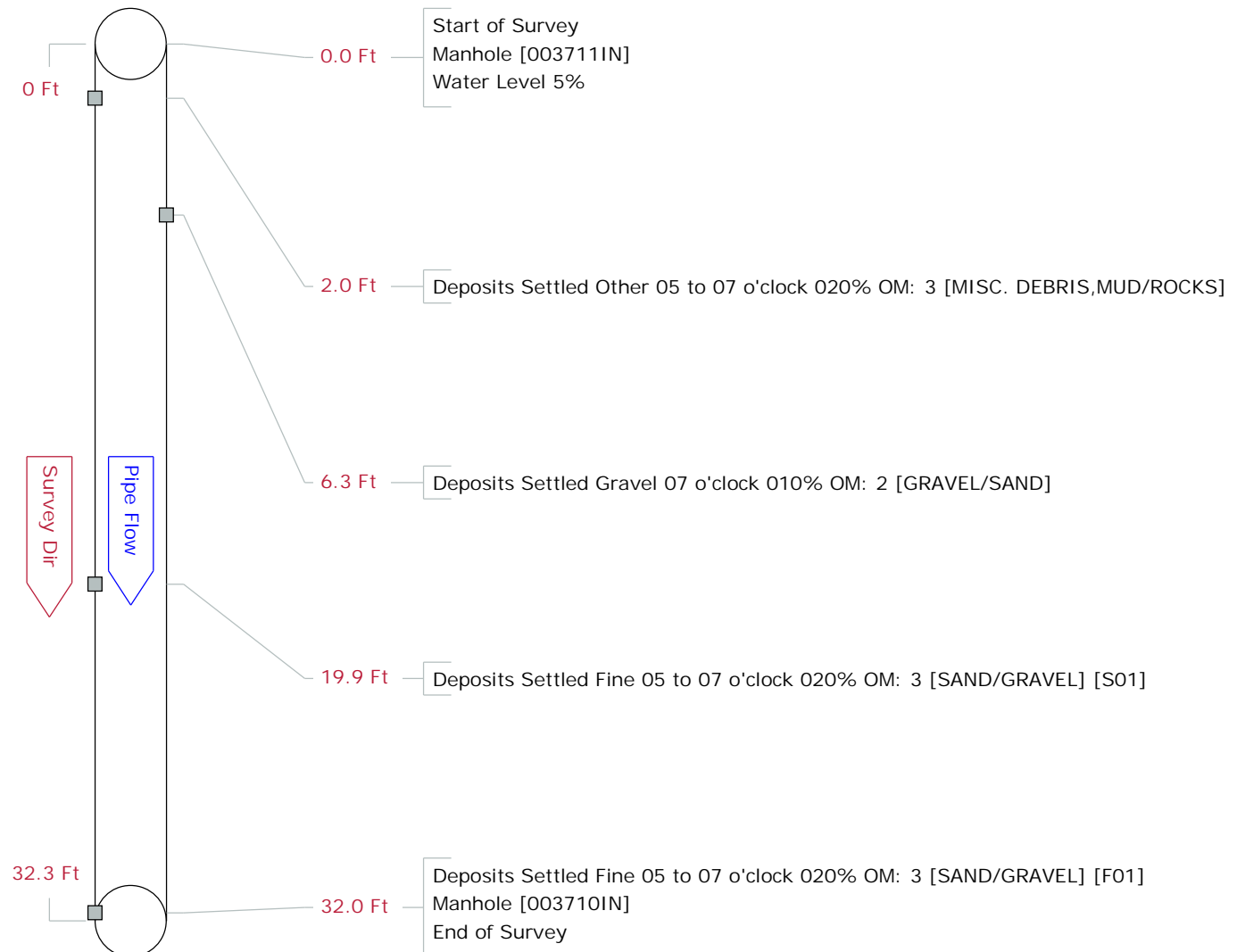
Setup	20	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOLMES RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/09/24	Time	9:13	Street	1591 CHAPEL HILL DR.
City	ALEXANDRIA	Further location details (INDEX TILE) D-5d					
Start	003711IN	Rim to invert	3.50	Grade to invert		Rim to grade	Ft
Finish	003710IN	Rim to invert	3.80	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-9-24
Shape	Arched	Height	27	Width	43 ins	Preclean	J
						Year Cleaned	2012/09/24
Material	Corrugated Metal Pipe	Joint length	12.0	Ft	Total length	32.3	Ft
						Length Surveyed	32.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info	003710IN HAS AN ADDITIONAL INFLUENT ARCHED CMP						
Location	Light Highway						
Project	CASSCA_CCTV_20120923_20120929_SMU					Work Order	
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 005435STMP

for CH2M HILL

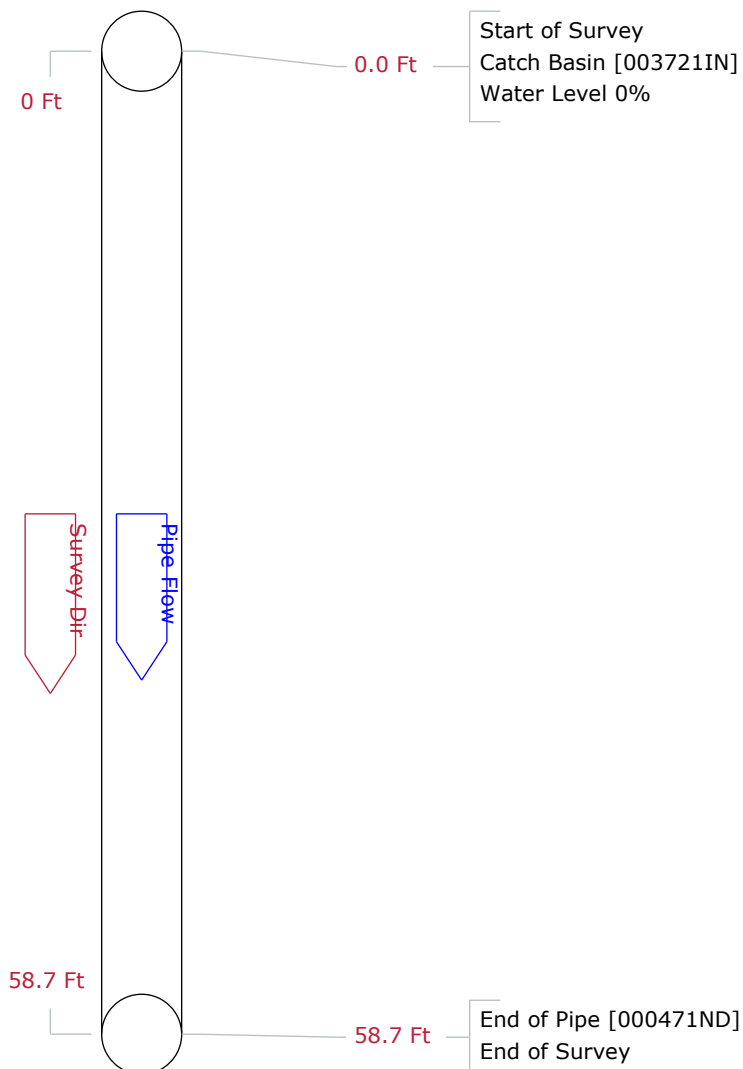
Setup	4	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA	
Drainage	HOLMES RUN	Survey Customer	CH2M HILL					
P/O #		Date	2012/09/24	Time	9:13	Street	1591 CHAPEL HILL DR.	
City	ALEXANDRIA	Further location details (INDEX TILE) D-5d						
Start	003711IN	Rim to invert	3.50	Grade to invert		Rim to grade	Ft	
Finish	003710IN	Rim to invert	3.80	Grade to invert		Rim to grade	Ft	
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-9-24	
Shape	Arched	Height	27	Width	43 ins	Preclean	J	
						Year Cleaned	2012/09/24	
Material	Corrugated Metal Pipe	Joint length	12.0 Ft	Total length	32.3	Ft	Length Surveyed	32.00
Lining		Year laid		Year rehabilitated		Weather	Dry	
Purpose	Maintenance Related			Cat				
Additional info	003710IN HAS AN ADDITIONAL INFLUENT ARCHED CMP					Work Order		
Location	Light Highway							
Project	CASSCA_CCTV_20120923_20120929_SMU							
Northing	Easting							
Coordinate System						Elevation		
						GPS Accuracy		



Pipe Graphic Report of PSR 005722STMP

for CH2M HILL

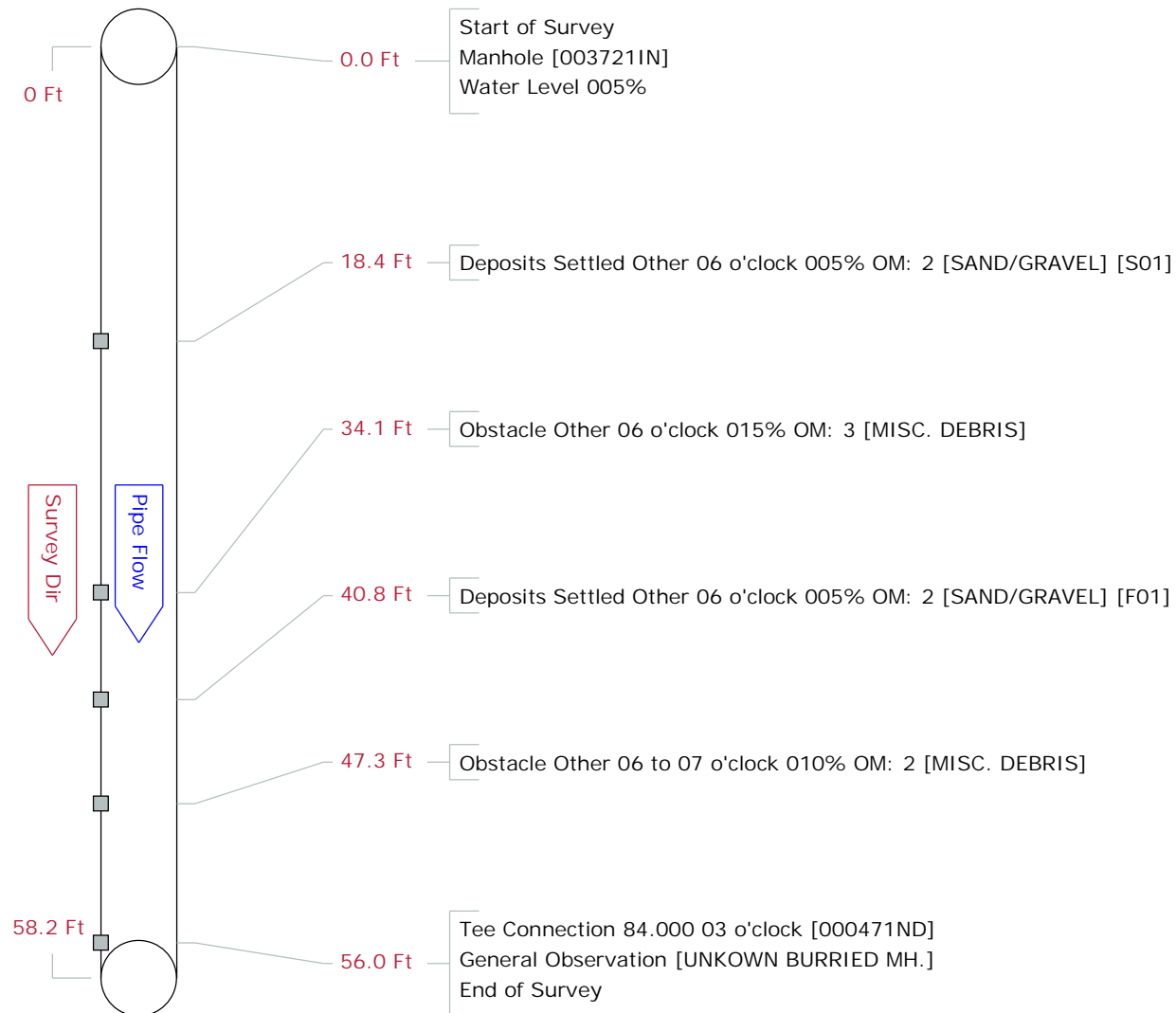
Setup	7	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA
Drainage	CAMERON RL	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/15	Time	14:13	Street	CAMERON PARKE PL.
City	ALEXANDRIA	Further location details					
Start	003721IN	Rim to invert	6.80	Grade to invert		Rim to grade	Ft
Finish	000471ND	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2MH 4-15
Shape	Circular	Height	36	Width	ins	Preclean	N
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	58.2	Ft	Length Surveyed 58.70
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location						Sidewalk	
Project						CCTV_20130414_20130420_EC	
Northing						Easting	
Coordinate System						GPS Accuracy	
						Work Order -	



Pipe Graphic Report of PSR 005722STMP

for CH2M HILL

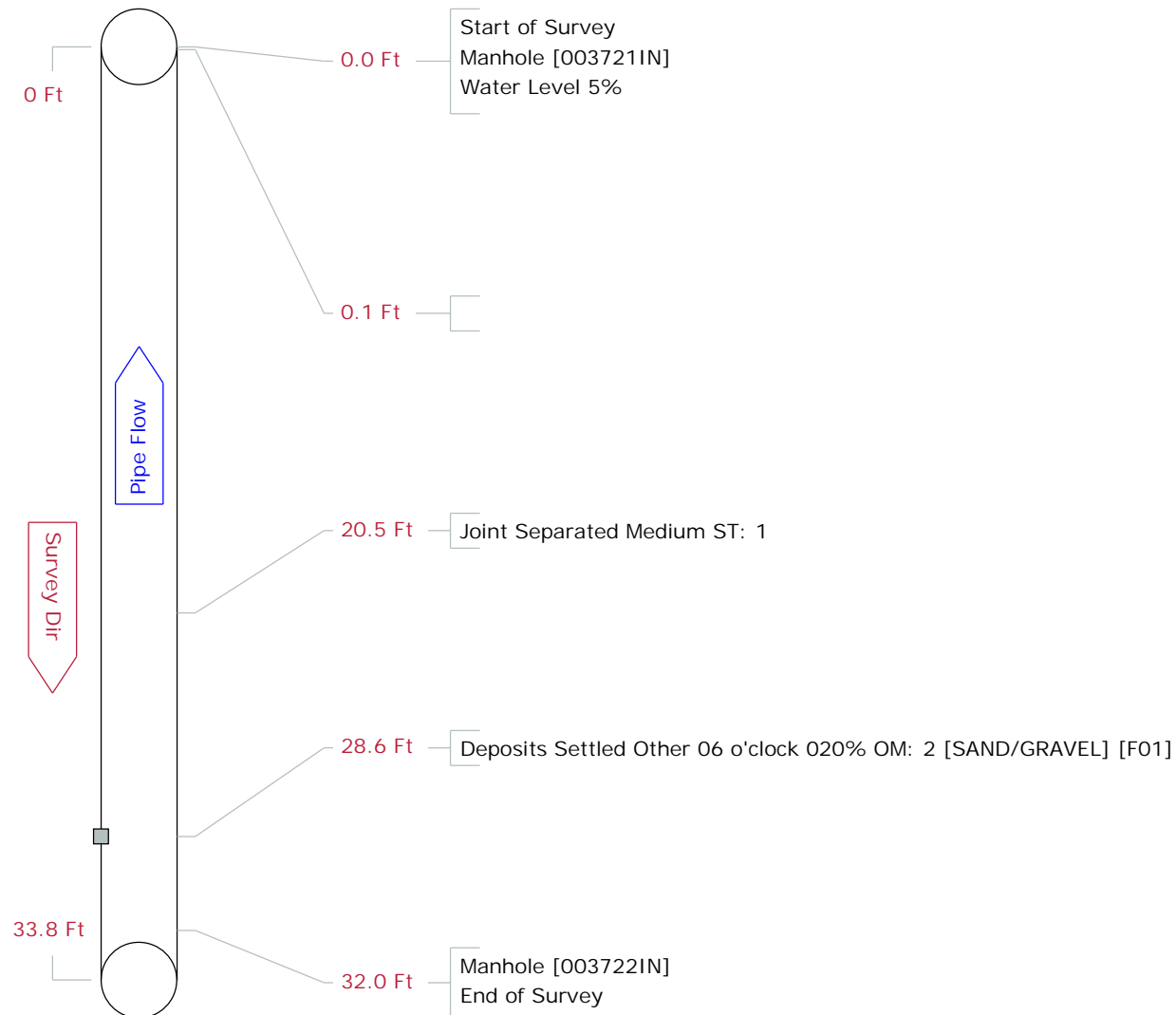
Setup	26	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	CAMERON RL	Survey Customer	CH2M HILL				
P/O #		Date	2012/10/26	Time	11:04	Street	3825.5 DOMINION MI.
City	ALEXANDRIA	Further location details (INDEX TILE) H-6b					
Start	003721IN	Rim to invert	6.90	Grade to invert		Rim to grade	Ft
Finish	000471ND	Rim to invert	0.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-10-26
Shape	Circular	Height	36	Width	ins	Preclean	J
						Year Cleaned	2012/10/26
Material	Corrugated Metal Pipe	Joint length	20.0	Ft	Total length	58.2	Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info	000471ND IS A T-CONNECTION INTO SEGMENT 005721STMP						
Location	Light Highway						
Project	CASSCA_CCTV_20121021-20121027_SMU						
Northing		Easting		Elevation		Work Order	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 005723STMP

for CH2M HILL

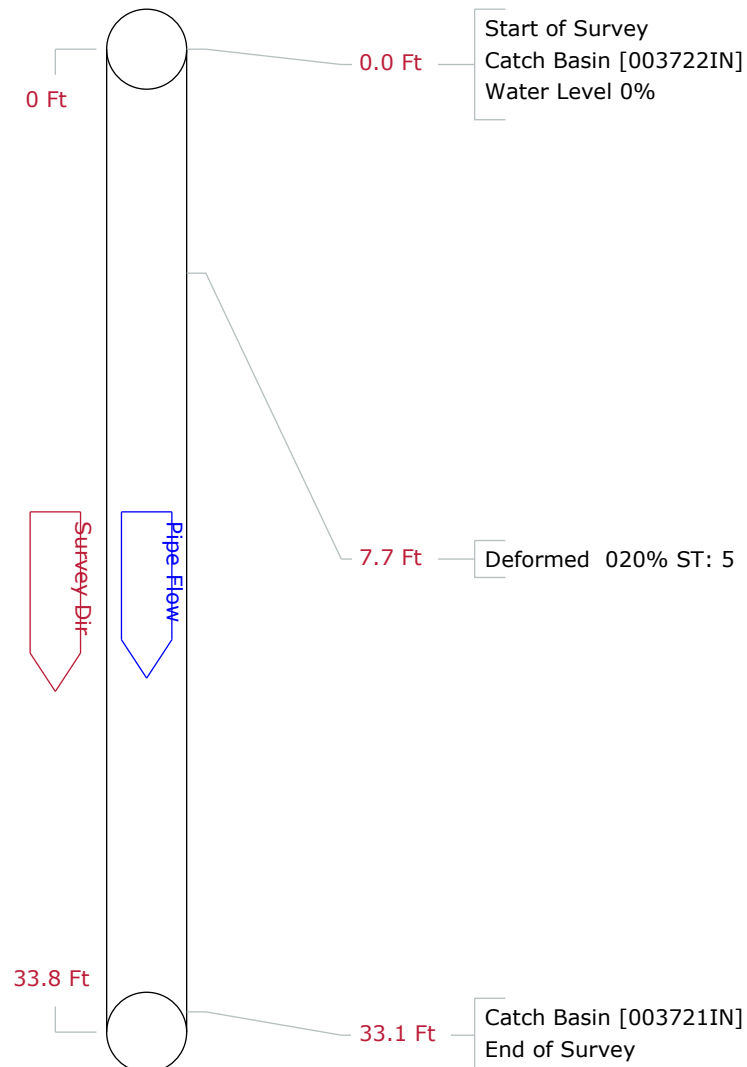
Setup	25	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	CAMERON RL	Survey Customer	CH2M HILL				
P/O #		Date	2012/10/26	Time	12:22	Street	3825.5 DOMINION MI.
City	ALEXANDRIA	Further location details (INDEX TILE) H-6b					
Start	003721IN	Rim to invert	6.90	Grade to invert		Rim to grade	Ft
Finish	003722IN	Rim to invert	6.50	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-10-26
Shape	Circular	Height	30	Width	ins	Preclean	J
Material	Corrugated Metal Pipe	Joint length	20.0	Ft	Total length	33.8	Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location	Light Highway						
Project	CASSCA_CCTV_20121021-20121027_SMU					Work Order	
Northing	Easting			Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 005723STMP

for CH2M HILL

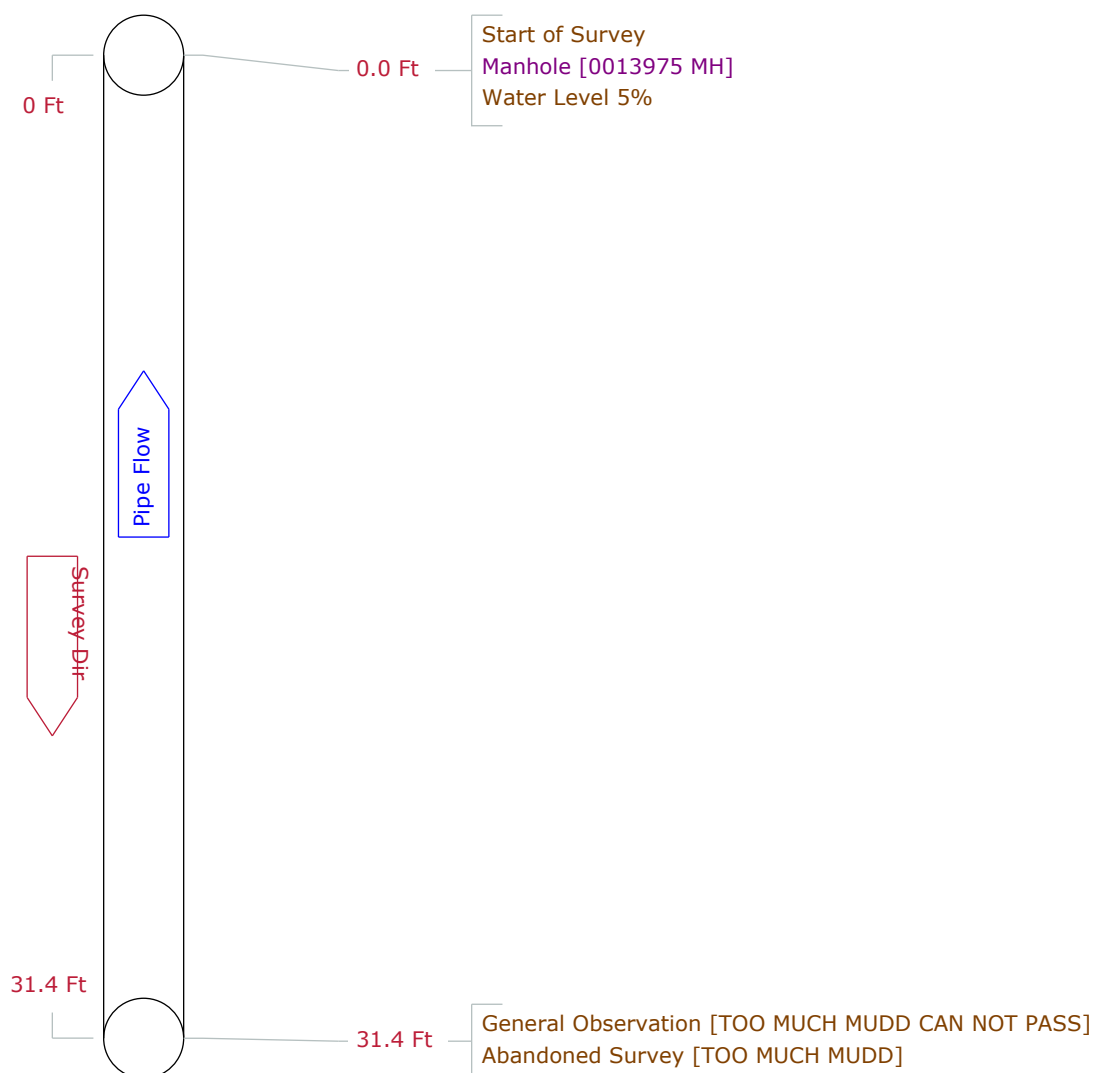
Setup	6	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA
Drainage	CAMERON RL	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/15	Time	13:53	Street	CAMERON PARKE PL.
City	ALEXANDRIA	Further location details					
Start	003722IN	Rim to invert	6.40	Grade to invert		Rim to grade	Ft
Finish	003721IN	Rim to invert	6.80	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2MH 4-15
Shape	Circular	Height	36	Width	ins	Preclean	N
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	33.8	Ft	Length Surveyed 33.10
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location				Sidewalk			
Project				CCTV_20130414_20130420_EC			
Northing				Easting			
Coordinate System				Elevation			
				GPS Accuracy			
				Work Order -			



Pipe Graphic Report of PSR 005511STMP

for CH2MHILL

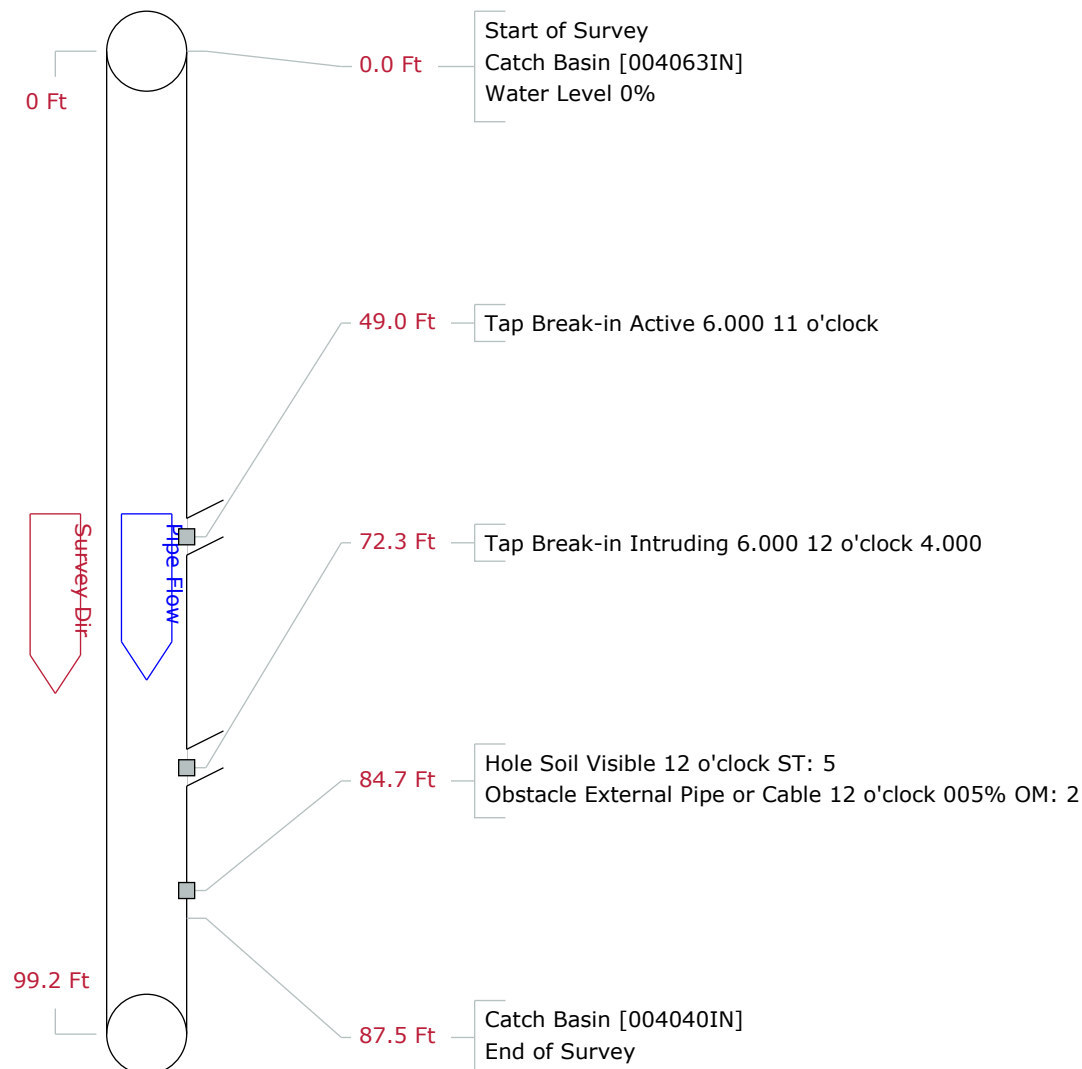
Setup	16	Surveyor	GTT	Certificate #	U-207-4469	System Owner	CITY OF ALENANDRIA
Drainage		Survey Customer					
P/O #		Date	2012/09/05	Time	9:04	Street	2005 BRADDOCK CT
City	ALEXANDRIA	Further location details					
Start	0013975 MH	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	003882 IN	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control		Media No	1
Shape	Other	Height	73	Width	55 ins	Preclean	H
Material	Corrugated Metal Pipe	Joint length		Ft	Total length		Ft
Lining		Year laid		Year rehabilitated		Weather	Damp
Purpose				Cat			
Additional info						Structural	O&M
Location	Light Highway					Miscellaneous	Hydraulic
Project	CASSA_CCTV_20120902_20120908_DB					Constructional	
Northing		Easting		Elevation		Work Order	
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 005479STMP

for CH2M HILL

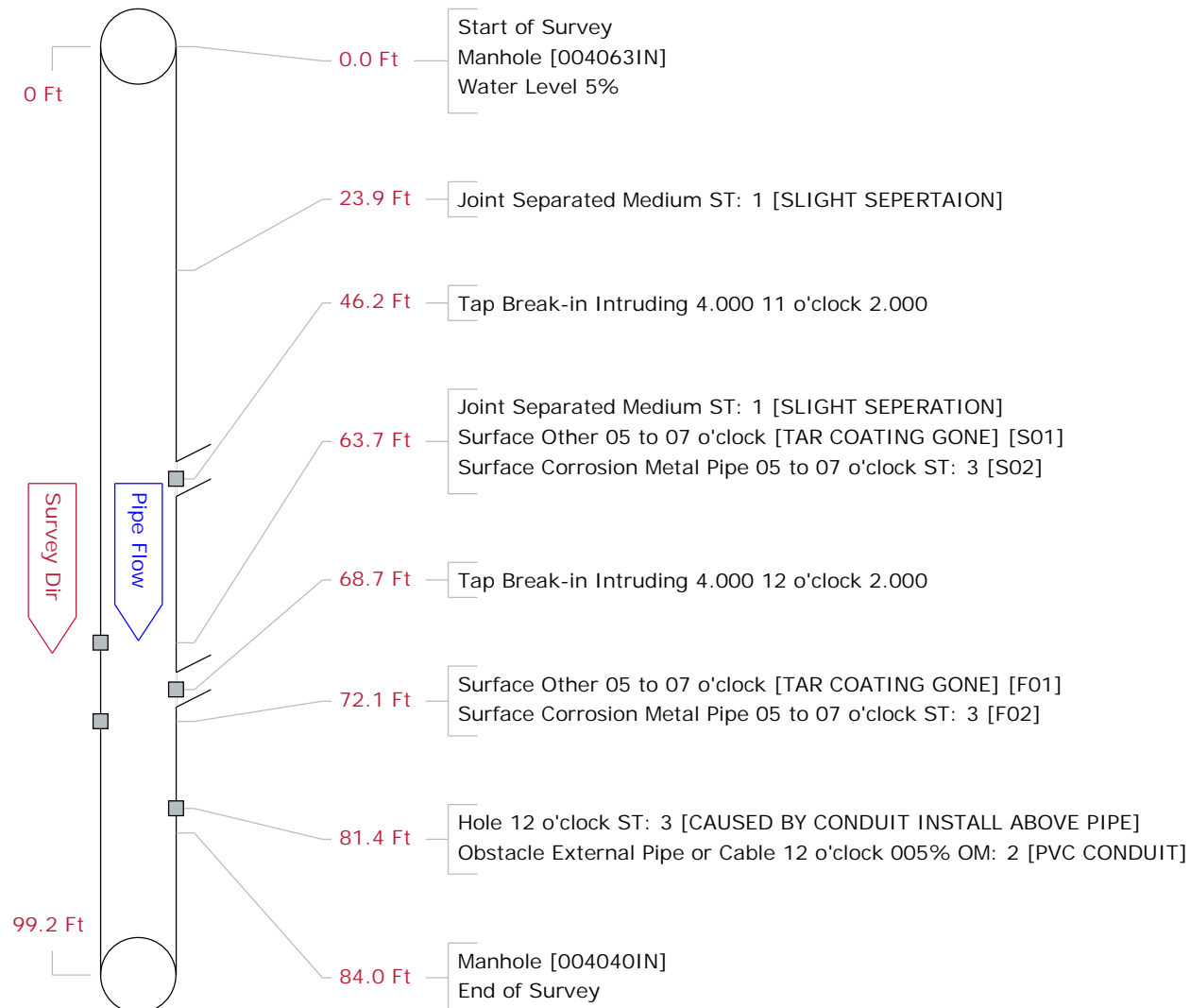
Setup	14	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA
Drainage	BACKLICK RU	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/15	Time	11:42	Street	GRETN GREEN CT.
City	ALEXANDRIA	Further location details					
Start	004063IN	Rim to invert	12.80	Grade to invert		Rim to grade	Ft
Finish	004040IN	Rim to invert	5.80	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2MH 4-15
Shape	Circular	Height	18	Width	ins	Preclean	N
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	99.2	Ft	Length Surveyed 87.50
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info							
Location				Parking Lot			
Project				CCTV_20130414_20130420_EC			
Northing				Easting			
Coordinate System				Elevation			
				GPS Accuracy			
				Work Order -			



Pipe Graphic Report of PSR 005479STMP

for CH2M HILL

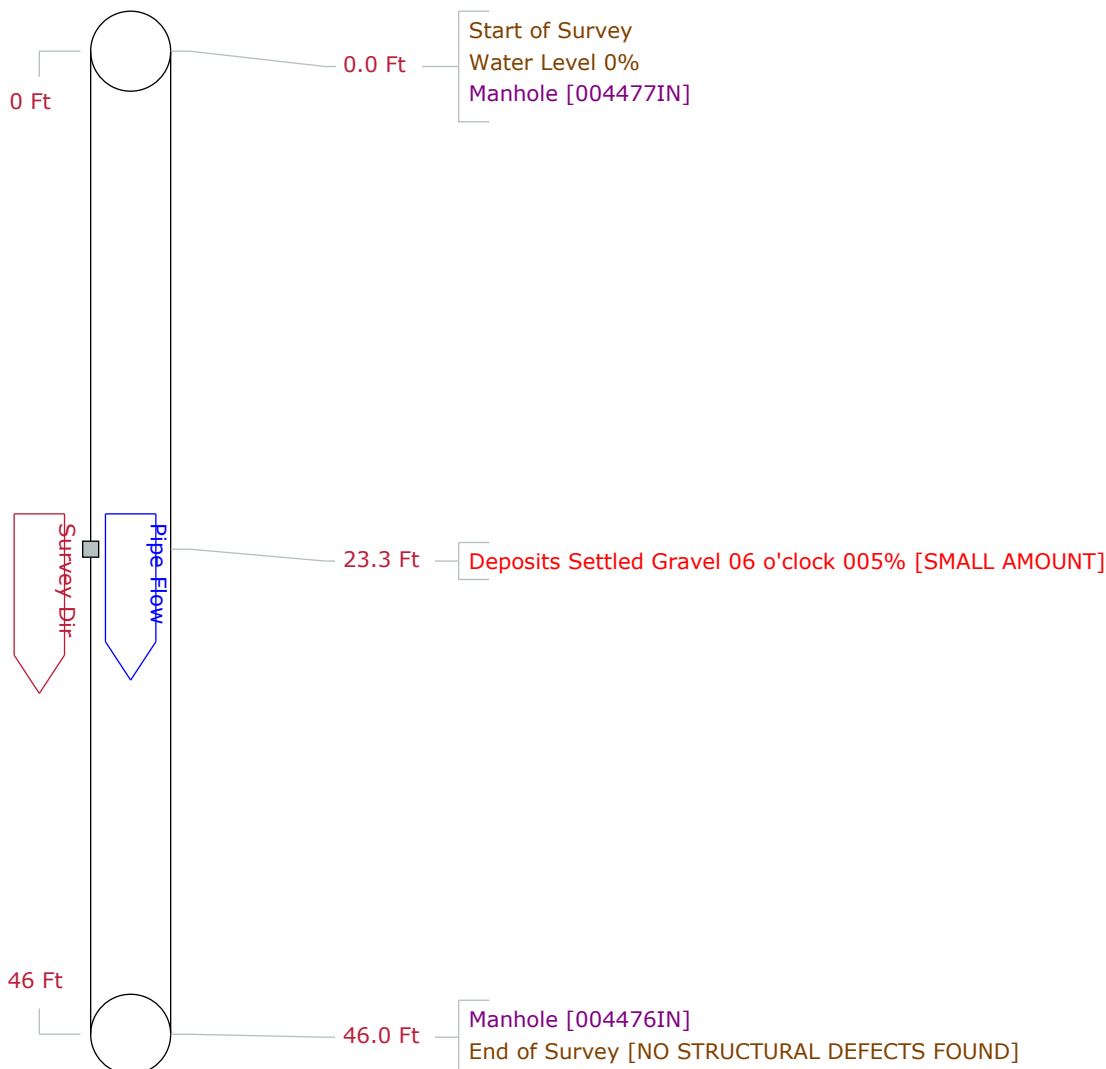
Setup	8	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA			
Drainage	BACKLICK RU			Survey Customer	CH2M HILL					
P/O #		Date	2012/09/28	Time	10:04	Street	103 S.PICKETT ST.			
City	ALEXANDRIA		Further location details (INDEX TILE) G-3a							
Start	004063IN		Rim to invert	12.40	Grade to invert	Rim to grade	Ft			
Finish	004040IN		Rim to invert	6.00	Grade to invert	Rim to grade	Ft			
Use	Stormwater		Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-9-28		
Shape	Circular		Height	18	Width	ins	Preclean	J	Year Cleaned	2012/09/28
Material	Corrugated Metal Pipe		Joint length	20.0	Ft	Total length	99.2	Ft	Length Surveyed	84.00
Lining			Year laid		Year rehabilitated		Weather	Damp		
Purpose	Maintenance Related		Cat							
Additional info	PIPE RUNS DWN BETWEEN 234-236 GRETNA GREEN CT.									
Location	Easement/Right of Way									
Project	CASSCA_CCTV_20120923_20120929_SMU									
Northing			Easting			Elevation	Work Order			
Coordinate System						GPS Accuracy				



Pipe Graphic Report of PSR 007276STMP

for CH2M HILL

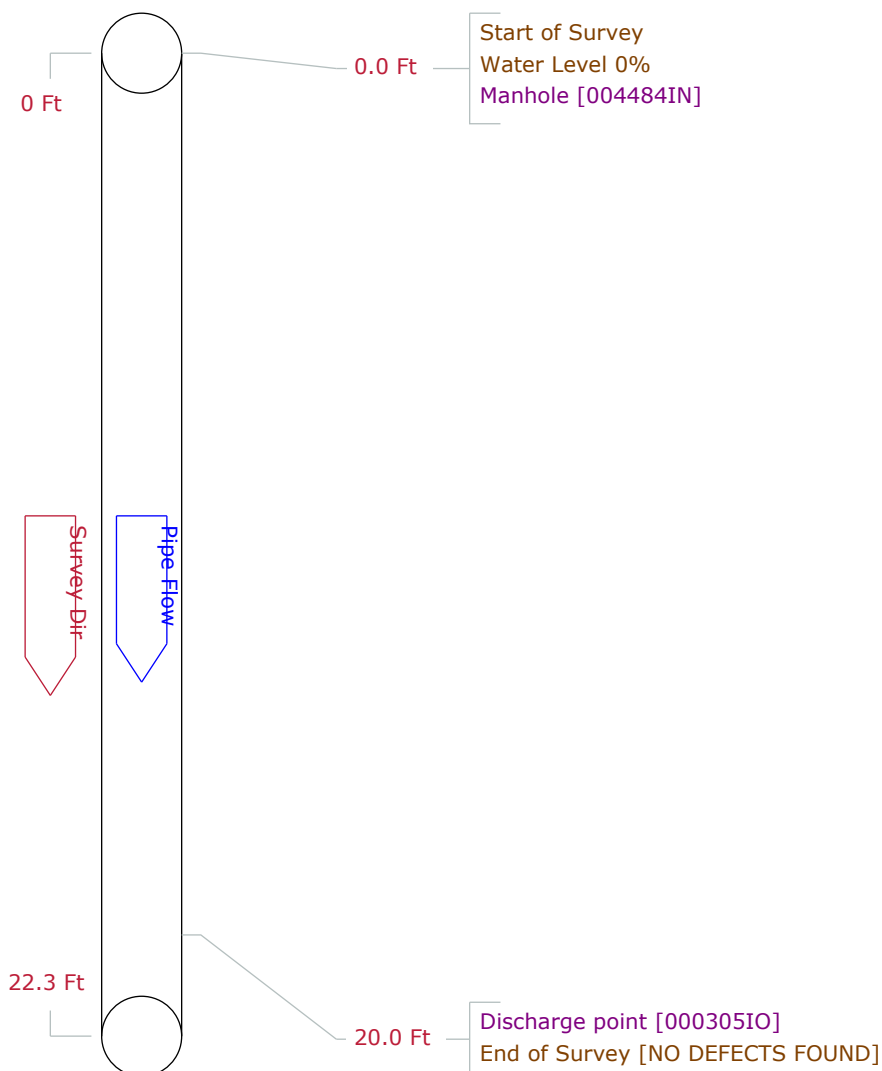
Setup	1	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN		Survey Customer	CH2M HILL			
P/O #		Date	2012/07/16	Time	11:42	Street	1800 EISENHOWER AVE.
City	ALEXANDRIA		Further location details (INDEX TILE)I-9B HOOFS RUN DR.				
Start	004477IN		Rim to invert	3.70	Grade to invert	Rim to grade	Ft
Finish	004476IN		Rim to invert	4.80	Grade to invert	Rim to grade	Ft
Use	Stormwater		Direction	Downstream	Flow control	Not Controlled	Media No CH2M-7-16
Shape	Circular		Height	18	Width	18 ins	Preclean J Year Cleaned 2012/07/16
Material	Corrugated Metal Pipe		Joint length	2.0	Ft	Total length	44.8 Ft Length Surveyed 46.00
Lining			Year laid	Year rehabilitated		Weather	Dry
Purpose	Maintenance Related		Cat				
Additional info	LIGHT CLEAN					Structural	O&M
Location	Light Highway					Miscellaneous	Hydraulic
Project	CASSCA_CCTV_20120715_20120721_SMU					Work Order	
Northing			Easting			Elevation	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 007282STMP

for CH2M HILL

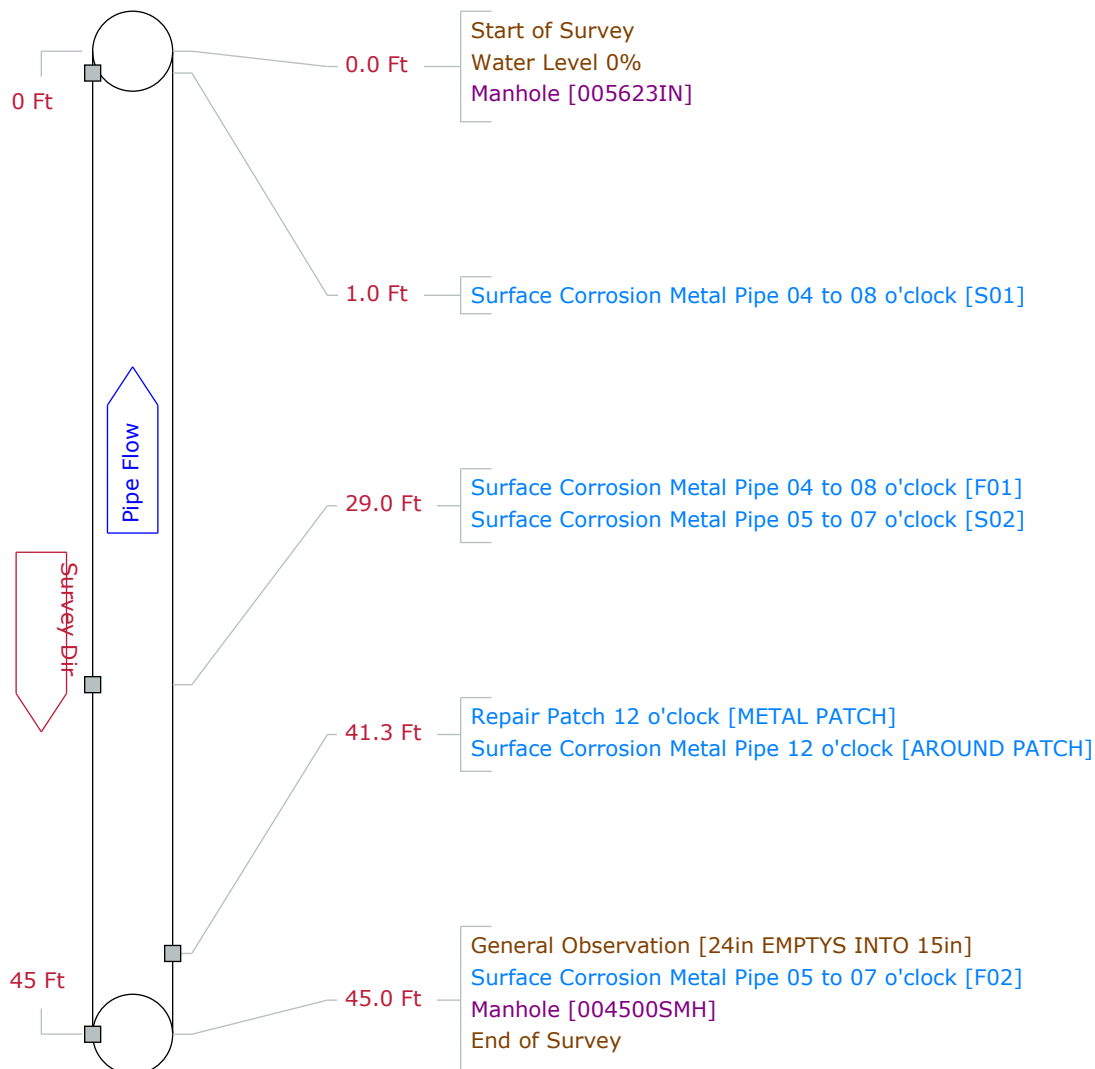
Setup	2	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/07/16	Time	13:31	Street	2000 EISENHOWER AVE.
City	ALEXANDRIA	Further location details	(INDEX TILE)H-9D SIDE PARKING LOT OF 2000 EISENHOWER AVE				
Start	004484IN	Rim to invert	5.60	Grade to invert		Rim to grade	Ft
Finish	000305IO	Rim to invert	0.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-7-16
Shape	Circular	Height	18	Width	18 ins	Preclean	J Year Cleaned 2012/07/16
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	22.3	Ft Length Surveyed 20.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info	LIGHT CLEAN					Structural	O&M Constructional
Location	Parking Lot					Miscellaneous	Hydraulic
Project	CASSCA_CCTV_20120715_20120721_SMU					Work Order	
Northing		Easting				Elevation	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 014550STMP

for CH2M HILL

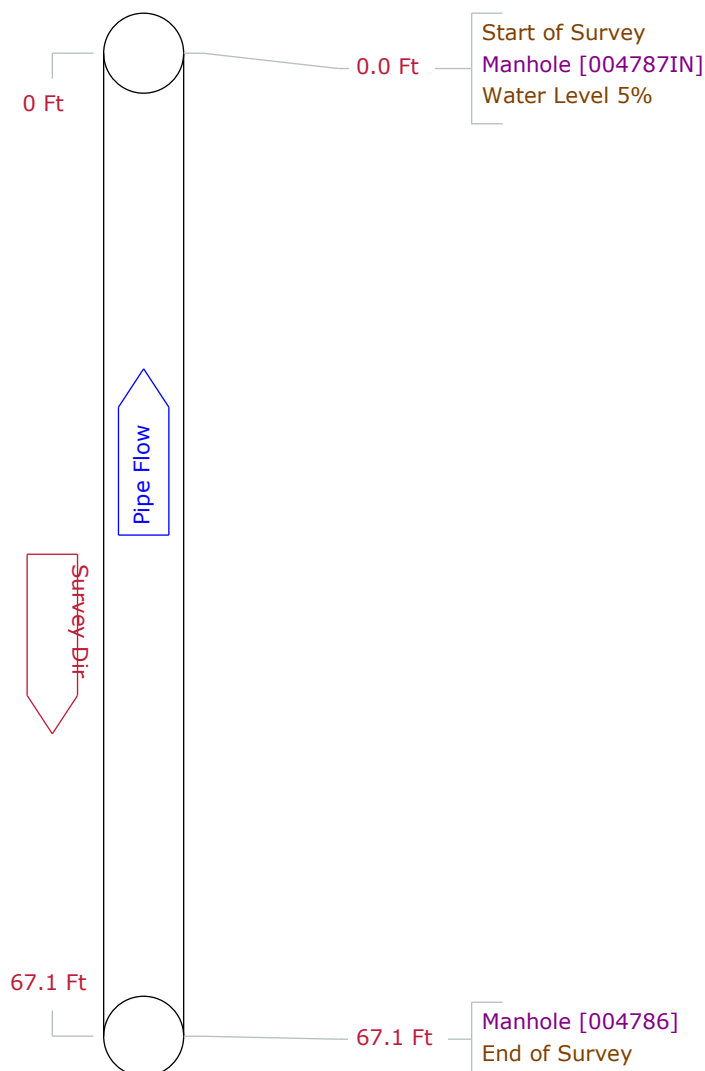
Setup	4	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/07/17	Time	10:26	Street	501 RICHARDS LN.
City	ALEXANDRIA	Further location details (INDEX TILE)D-9C					
Start	005623IN	Rim to invert	2.50	Grade to invert		Rim to grade	Ft
Finish	004500SMH	Rim to invert	0.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-7-17
Shape	Circular	Height	24	Width	24 ins	Preclean	J
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	44.0	Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info	LIGHT CLEAN,,UP STRM MH IS NEWLY FOUND & BURRIED				Structural	O&M	Constructional
Location	Light Highway				Miscellaneous	Hydraulic	
Project	CASSCA_CCTV_20120715_20120721_SMU				Work Order		
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 006851STMP

for CH2MHILL

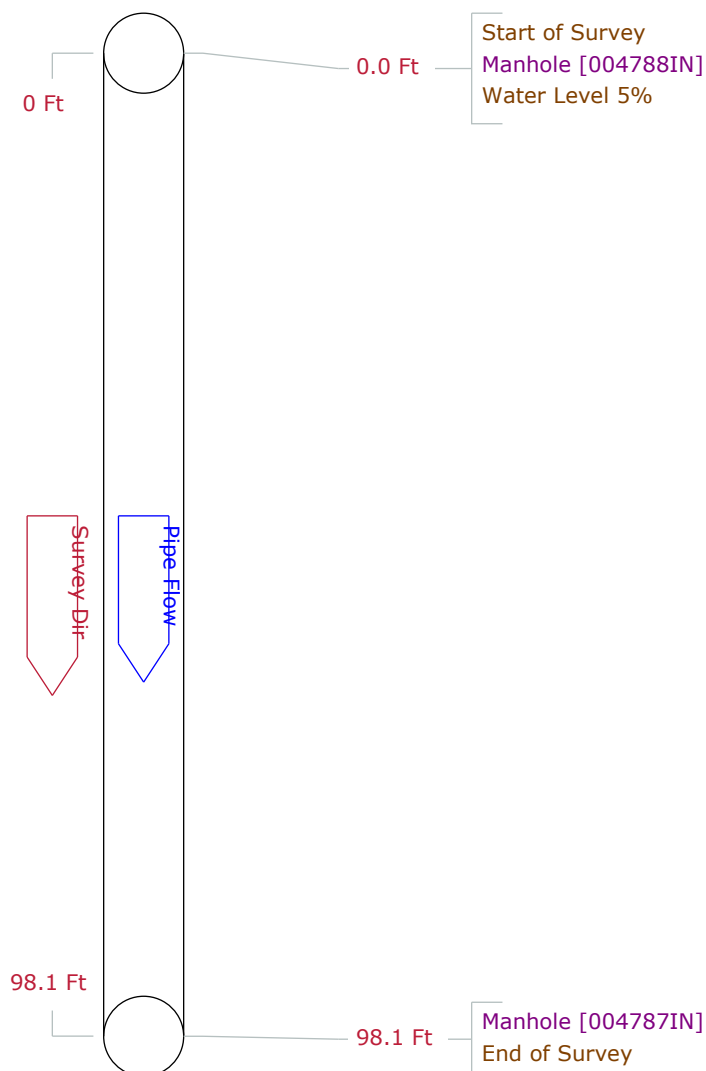
Setup	10	Surveyor	GTT	Certificate #	U-207-4469	System Owner	CITY OF ALEXANDRIA
Drainage		Survey Customer					
P/O #		Date	2012/08/30	Time	10:01	Street	723 N ASHTON ST
City	ALEXANDRIA	Further location details					
Start	004787IN	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	004786IN	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control		Media No	1
Shape	Circular	Height	48	Width	ins	Preclean	H
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	Ft	Length Surveyed	67.10
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose				Cat			
Additional info						Structural	O&M
Location						Miscellaneous	Hydraulic
Project						Work Order	
Northing						Elevation	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 006852STMP

for CH2MHILL

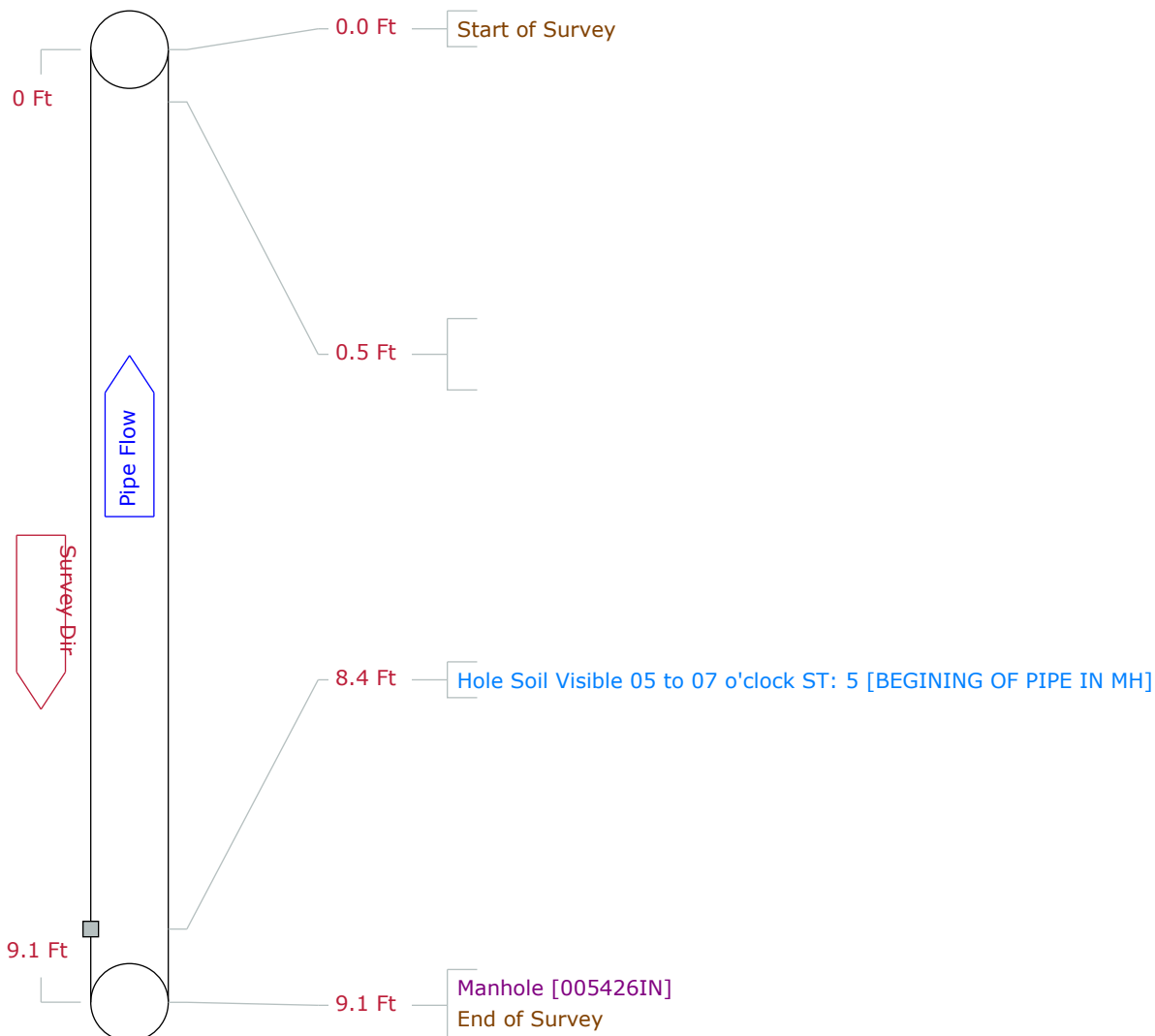
Setup 9	Surveyor GTT	Certificate # U-207-4469	System Owner CITY OF ALEXANDRIA
Drainage	Survey Customer		
P/O #	Date 2012/08/30	Time 8:48	Street 705 N ASHTON ST
City ALEXANDRIA	Further location details		
Start 004788IN	Rim to invert	Grade to invert	Rim to grade Ft
Finish 004787IN	Rim to invert	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Downstream	Flow control	Media No 1
Shape Circular	Height 48	Width ins	Preclean H Year Cleaned 2012/08/30
Material Corrugated Metal Pipe	Joint length	Ft Total length	Ft Length Surveyed 98.10
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose	Cat		
Additional info		Structural	O&M
Location Light Highway		Miscellaneous	Hydraulic
Project CASSA_CCTV_20120826_20120901_DB		Work Order	
Northing		Elevation	
Coordinate System		GPS Accuracy	



Pipe Graphic Report of PSR 008085STMP

for CH2MHILL

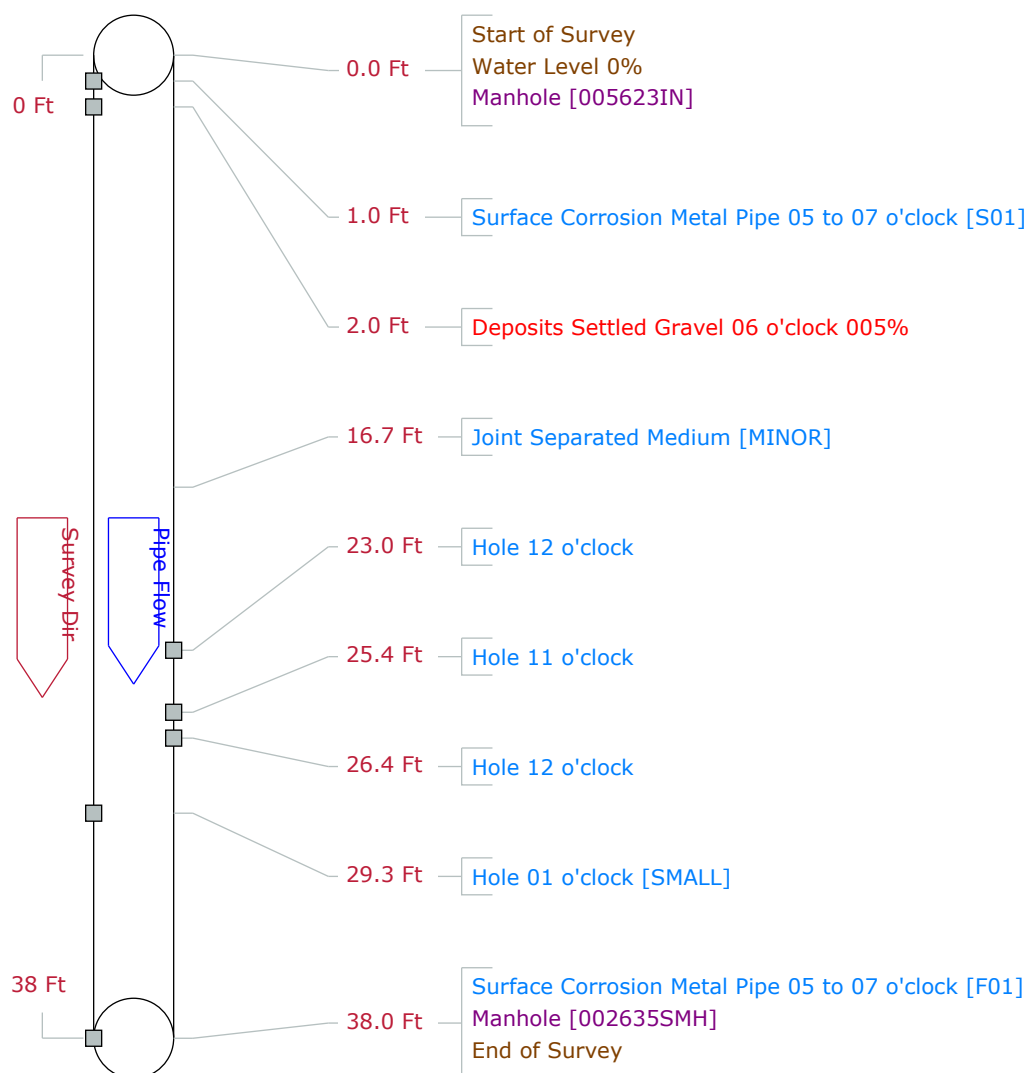
Setup	6	Surveyor	JAW	Certificate #	U-1209-9946	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFFS RUN	Survey Customer	CH2MHILL				
P/O #	946299	Date	2012/07/25	Time	14:07	Street	2602 CREST ST
City	ALEXANDRIA	Further location details					
Start	002510SMH	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	005426IN	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH72512
Shape	Circular	Height	12	Width	0 ins	Preclean	J
Material	Corrugated Metal Pipe	Joint length	10.0	Ft	Total length	7.8	Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info						Structural	O&M
Location						Miscellaneous	Hydraulic
Project						Work Order	
Northing						Elevation	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 007740STMP

for CH2M HILL

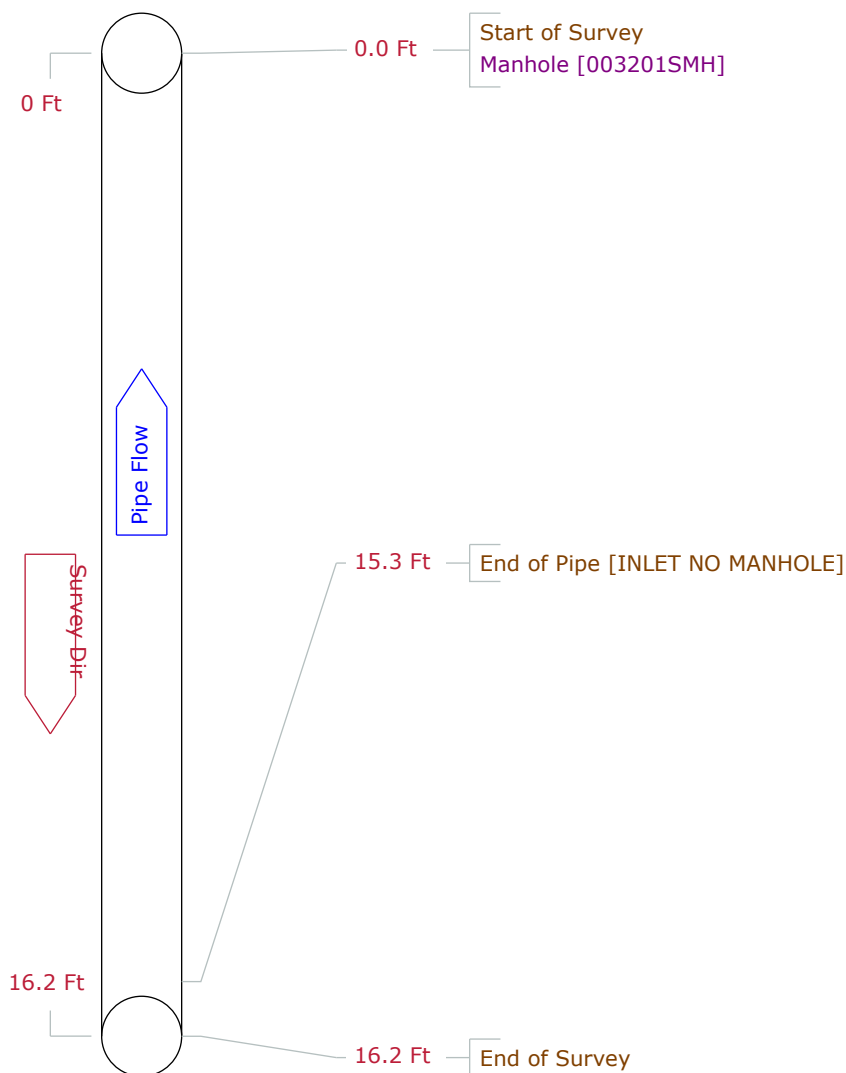
Setup	3	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/07/17	Time	7:14	Street	501 RICHARDS LN.
City	ALEXANDRIA	Further location details (INDEX TILE)D-9C					
Start	005623IN	Rim to invert	2.50	Grade to invert		Rim to grade	Ft
Finish	002635SMH	Rim to invert	6.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-7-17
Shape	Circular	Height	15	Width	15 ins	Preclean	J Year Cleaned 2012/07/17
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	30.2	Ft Length Surveyed 38.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info	LIGHT CLEAN	<div> <div>Structural</div> <div>O&M</div> <div>Constructional</div> </div>					
Location	Light Highway	<div> <div>Miscellaneous</div> <div>Hydraulic</div> </div>					
Project	CASSCA_CCTV_20120715_20120721_SMU	Work Order					
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 010021STMP

for CH2MHILL

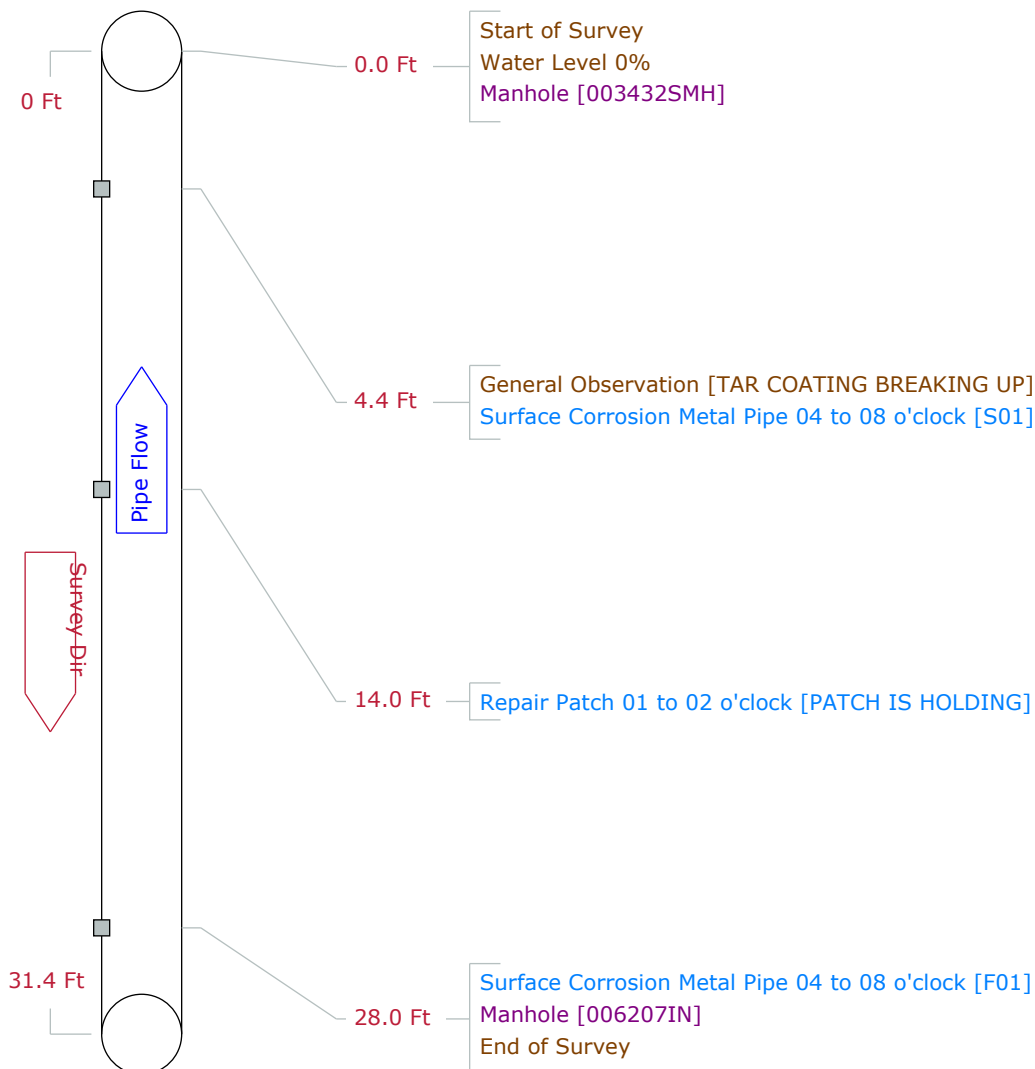
Setup	5	Surveyor	JAW	Certificate #	U-1209-9946	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFFS RUN	Survey Customer	CH2MHILL				
P/O #	946299	Date	2012/07/25	Time	12:26	Street	101 W ROSEMONT AVE
City	ALEXANDRIA	Further location details					
Start	003201SMH	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	006039IN	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH72512
Shape	Circular	Height	15	Width	0 ins	Preclean	J Year Cleaned 2012/07/25
Material	Corrugated Metal Pipe	Joint length	10.0	Ft	Total length	15.4	Ft Length Surveyed 16.20
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info	INLET HAS NO MANHOLE					Structural	O&M
Location	Light Highway					Miscellaneous	Hydraulic
Project	CASSA_CCTV_20120722_20120728_DB					Work Order	
Northing	Easting					Elevation	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 009710STMP

for CH2M HILL

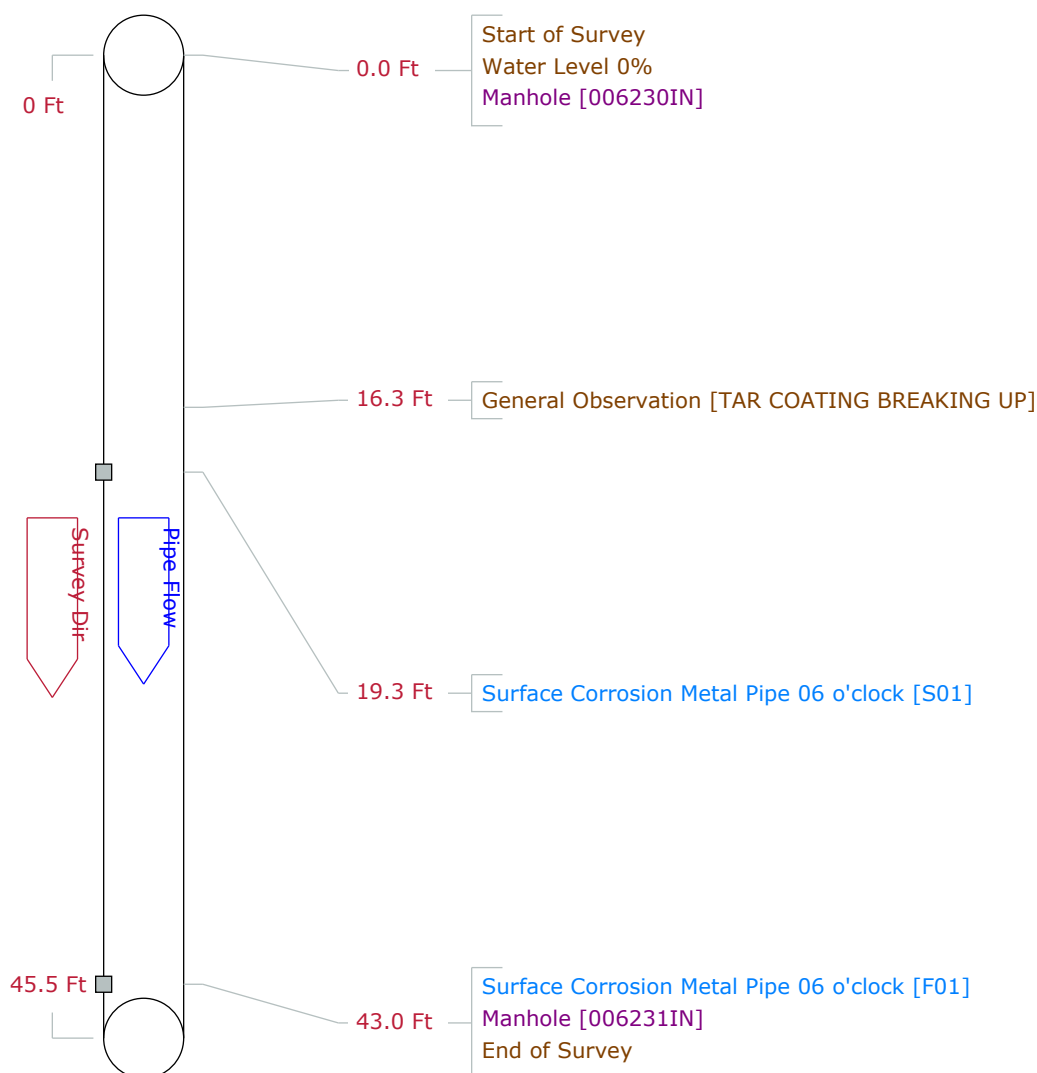
Setup	9	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA	
Drainage	HOOFS RUN	Survey Customer	CH2M HILL					
P/O #		Date	2012/07/18	Time	7:15	Street	9 W.MONROE AVE.	
City	ALEXANDRIA	Further location details (INDEX TILE)E-9B						
Start	003432SMH	Rim to invert	3.00	Grade to invert		Rim to grade	Ft	
Finish	006207IN	Rim to invert	1.50	Grade to invert		Rim to grade	Ft	
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-7-18	
Shape	Circular	Height	15	Width	15 ins	Preclean	J	
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	31.4	Ft	
Lining		Year laid		Year rehabilitated		Weather	Dry	
Purpose	Maintenance Related	Cat						
Additional info	LIGHT CLEAN					Structural	O&M	Constructional
Location	Light Highway					Miscellaneous	Hydraulic	
Project	CASSCA_CCTV_20120715_20120721_SMU	Work Order						
Northing		Easting		Elevation				
Coordinate System		GPS Accuracy						



Pipe Graphic Report of PSR 014551STMP

for CH2M HILL

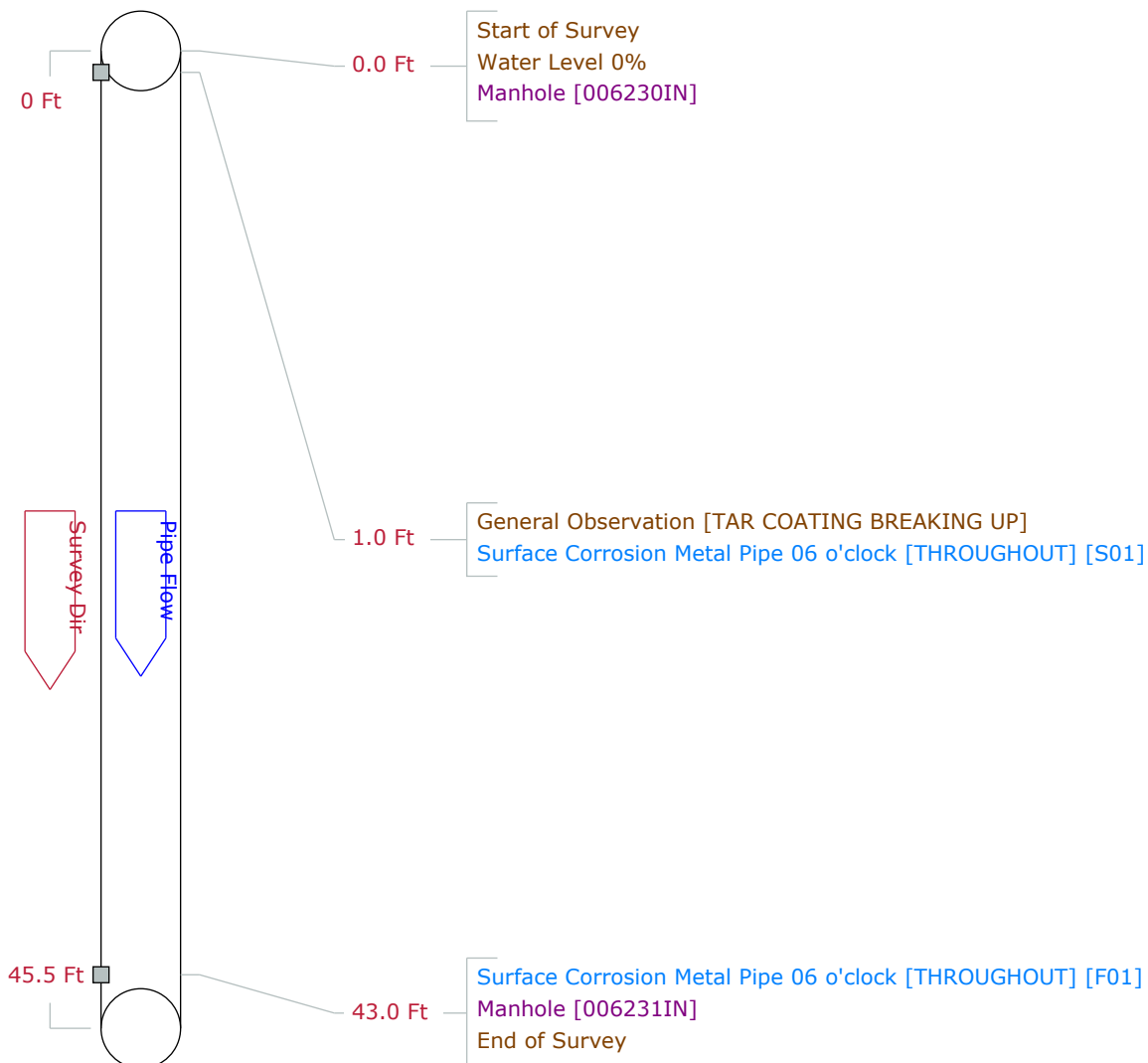
Setup	11	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/07/18	Time	9:59	Street	1610 MT.VERNON AVE.
City	ALEXANDRIA	Further location details (INDEX TILE)E-10A					
Start	006230IN	Rim to invert	3.00	Grade to invert		Rim to grade	Ft
Finish	006231IN	Rim to invert	7.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-7-18
Shape	Circular	Height	15	Width	15 ins	Preclean	J Year Cleaned 2012/07/18
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	45.5	Ft Length Surveyed 43.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info	LIGHT CLEAN,,PIPE #2					Structural	O&M
Location	Light Highway					Miscellaneous	Hydraulic
Project	CASSCA_CCTV_20120715_20120721_SMU					Work Order	
Northing	Easting					Elevation	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 009717STMP

for CH2M HILL

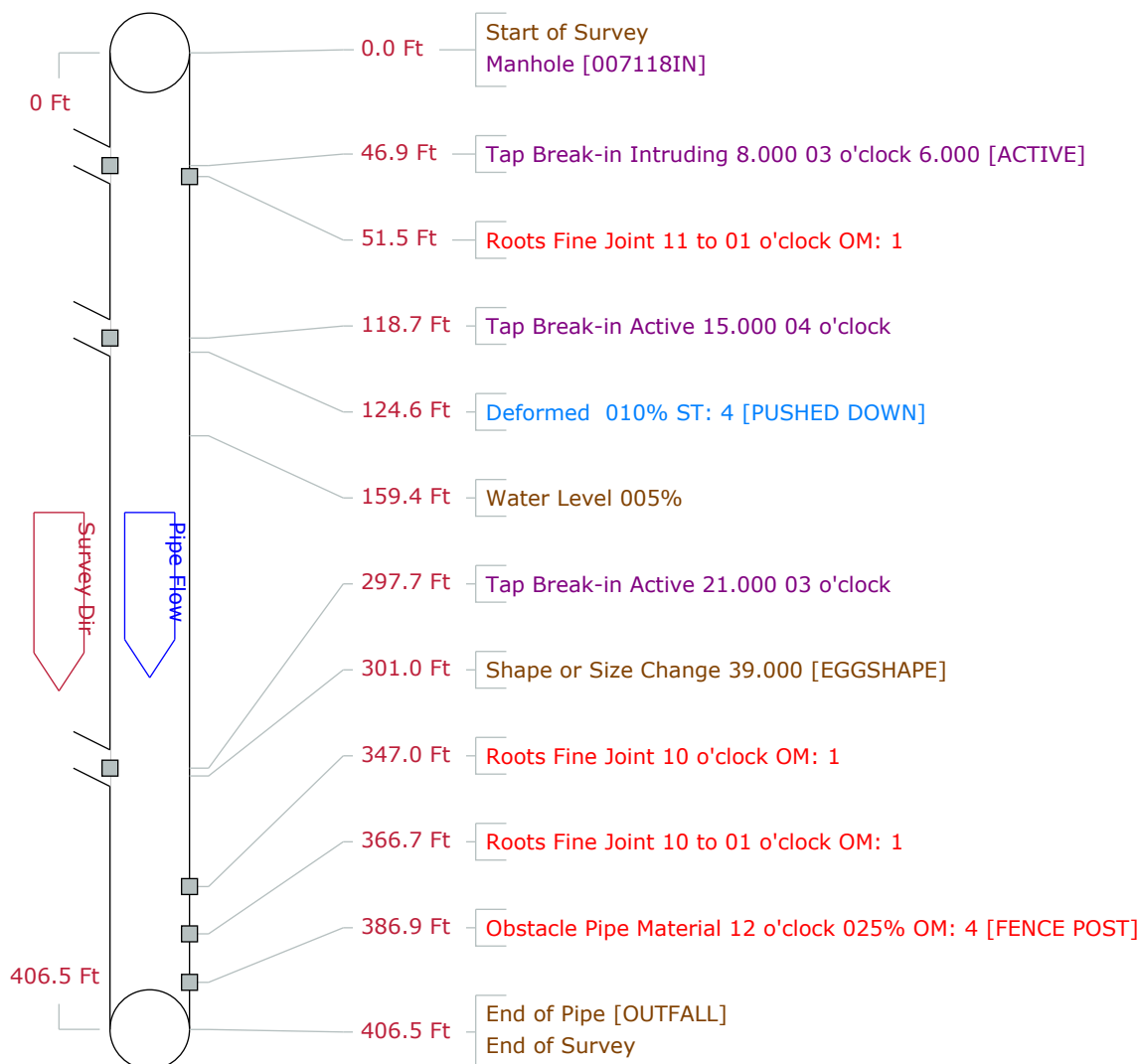
Setup	10	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/07/18	Time	8:33	Street	1610 MT.VERNON AVE.
City	ALEXANDRIA	Further location details (INDEX TILE)E-10A					
Start	006230IN	Rim to invert	3.00	Grade to invert		Rim to grade	Ft
Finish	006231IN	Rim to invert	7.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-7-18
Shape	Circular	Height	15	Width	15 ins	Preclean	J Year Cleaned 2012/07/18
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	45.5	Ft Length Surveyed 43.00
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info	LIGHT CLEAN,,PIPE #1					Structural	O&M
Location	Light Highway					Miscellaneous	Hydraulic
Project	CASSCA_CCTV_20120715_20120721_SMU					Work Order	
Northing	Easting					Elevation	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 012746STMP

for CH2MHILL

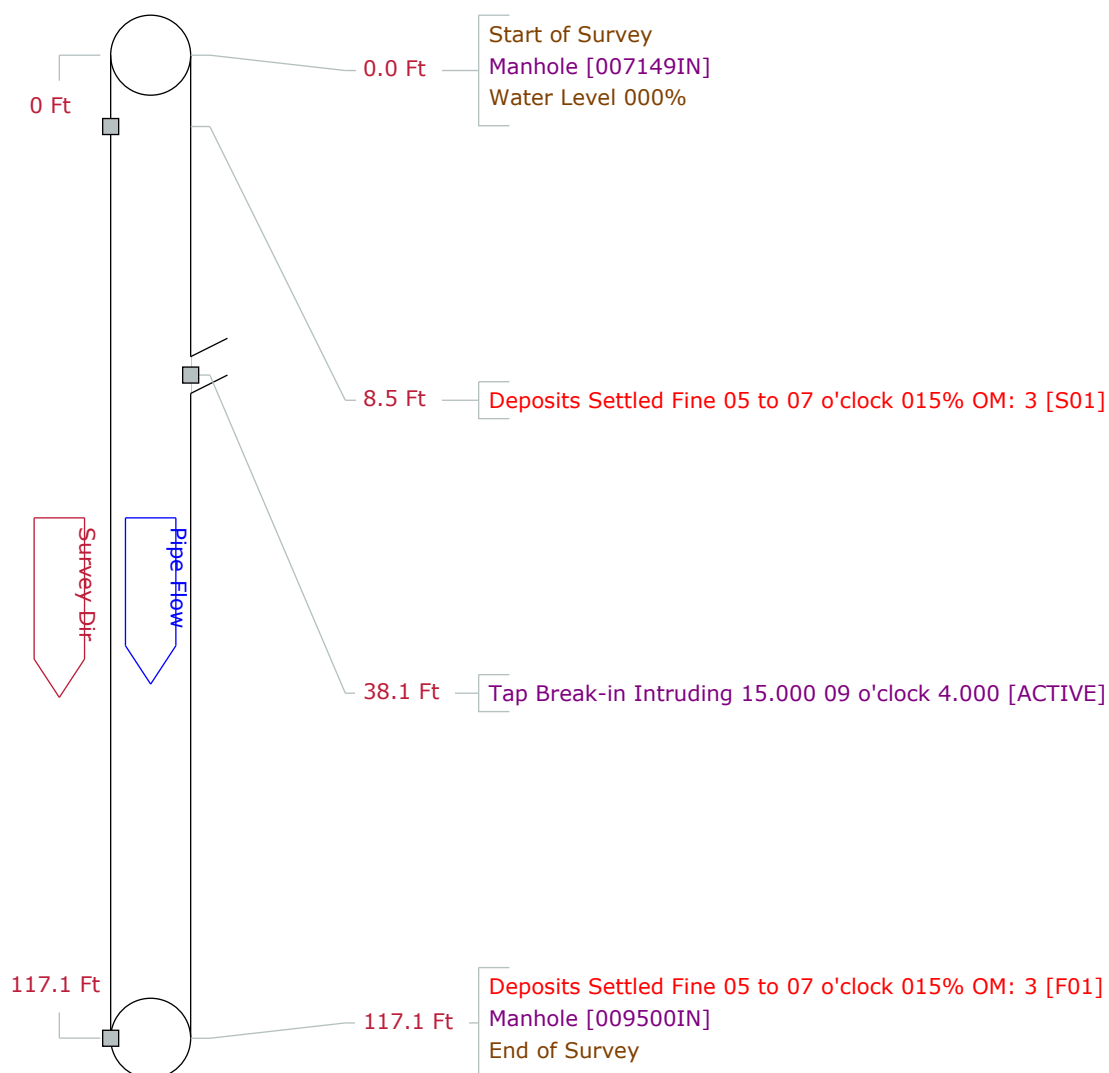
Setup	9	Surveyor	JAW	Certificate #	U-1209-9946	System Owner	CITY OF ALEXANDRIA
Drainage	FOUR MILE R	Survey Customer	CH2MHILL				
P/O #	946299	Date	2012/07/27	Time	8:20	Street	3600 COMMONWEALTH AV
City	ALEXANDRIA	Further location details					
Start	007118IN	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	000429IO	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH72712
Shape	Arched	Height	39	Width	64 ins	Preclean	J Year Cleaned 2012/07/27
Material	Corrugated Metal Pipe	Joint length	10.0 Ft	Total length	402.0 Ft	Length Surveyed	406.50
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info						Structural	O&M
Location						Easement/Right of Way	Constructional
Project						CASSA_CCTV_20120722_20120728_DB	Hydraulic
Northing						Work Order	
Easting				Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 011898STMP

for CH2MHILL

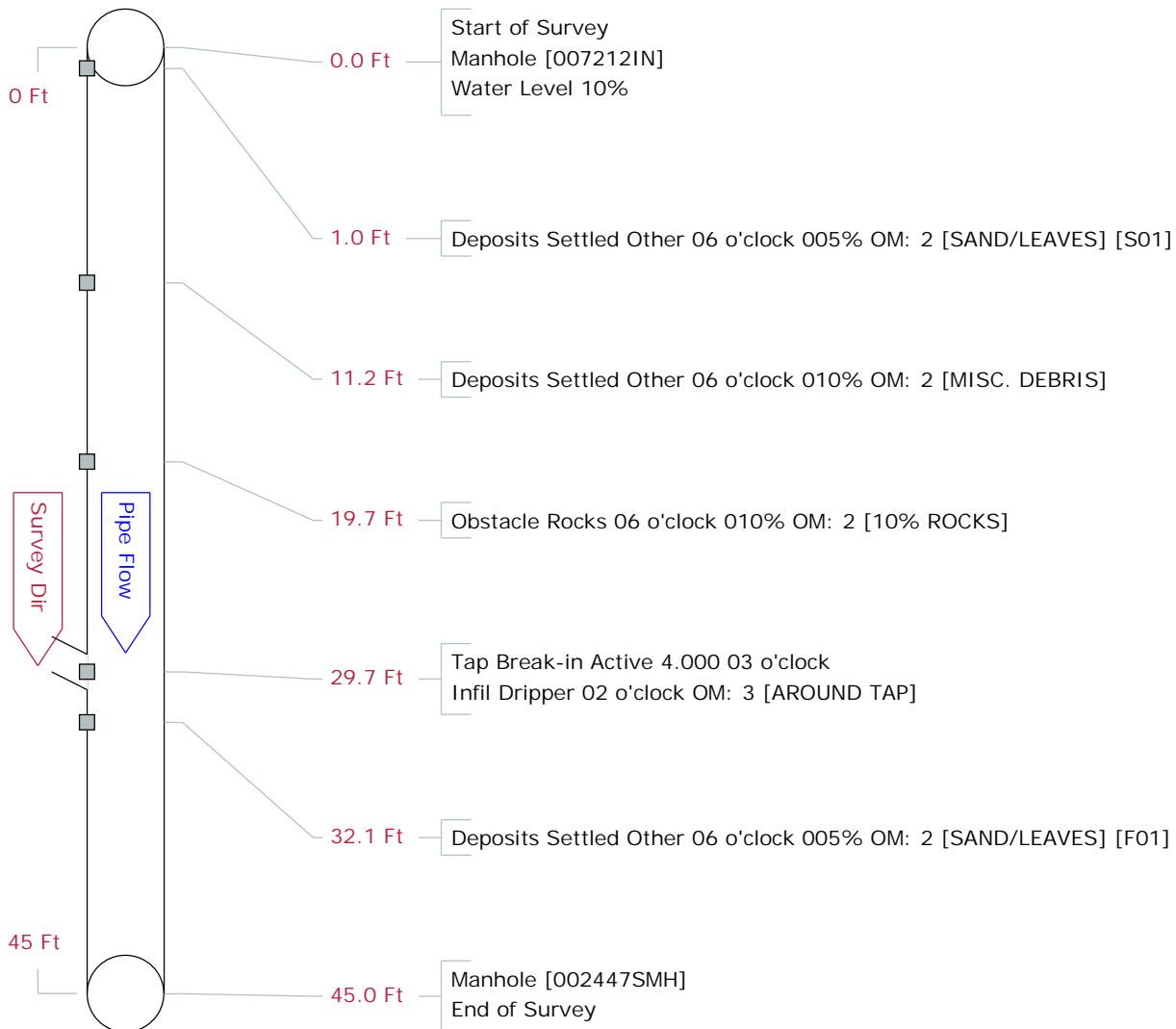
Setup	10	Surveyor	JAW	Certificate #	U-1209-9946	System Owner	CITY OF ALEXANDRIA
Drainage	FOUR MILE R	Survey Customer	CH2MHILL				
P/O #	946299	Date	2012/07/27	Time	12:27	Street	3601 RUSSELL RD
City	ALEXANDRIA	Further location details					
Start	007149IN	Rim to invert		Grade to invert		Rim to grade	Ft
Finish	009500IN	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH72712
Shape	Egg Shaped	Height	33	Width	49 ins	Preclean	J
Material	Corrugated Metal Pipe	Joint length	3.0	Ft	Total length	61.4	Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info						Structural	O&M
Location						Miscellaneous	Hydraulic
Project						Work Order	
Northing						Elevation	
Coordinate System						GPS Accuracy	



Pipe Graphic Report of PSR 007847STMP

for CH2MHILL

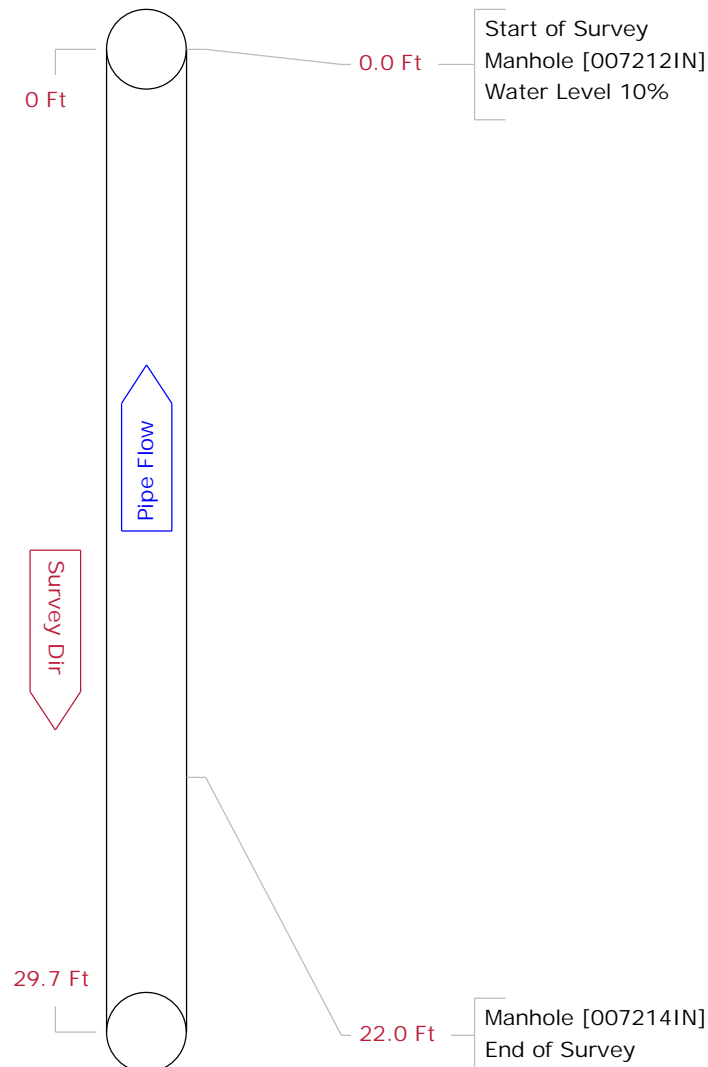
Setup	3	Surveyor	SMU	Certificate #	U-809-9223		System Owner	CITY OF ALEXANDRIA		
Drainage	CSO-PENDLE		Survey Customer	CH2M HILL						
P/O #	946299		Date	2013/03/25		Time	12:28			
Street	1404 PORTNER RD.									
City	ALEXANDRIA		Further location details		AT DEAD END OF PORTNER RD.					
Start	007212IN		Rim to invert	4.10		Grade to invert	Rim to grade		Ft	
Finish	002447SMH		Rim to invert	5.10		Grade to invert	Rim to grade		Ft	
Use	Stormwater		Direction	Downstream		Flow control	Not Controlled		Media No	CH2M-3-25
Shape	Circular		Height	15	Width	ins	Preclean	J	Year Cleaned	2013/03/25
Material	Corrugated Metal Pipe		Joint length	3.0	Ft	Total length	45.0	Ft	Length Surveyed	45.00
Lining			Year laid			Year rehabilitated			Weather	Light Rain
Purpose	Routine Assessment					Cat				
Additional info										
Location	Light Highway									
Project	CASSA_CCTV_20130324_20130330_SMU						Work Order			
Northing			Easting			Elevation				
Coordinate System						GPS Accuracy				



Pipe Graphic Report of PSR 007848STMP

for CH2MHILL

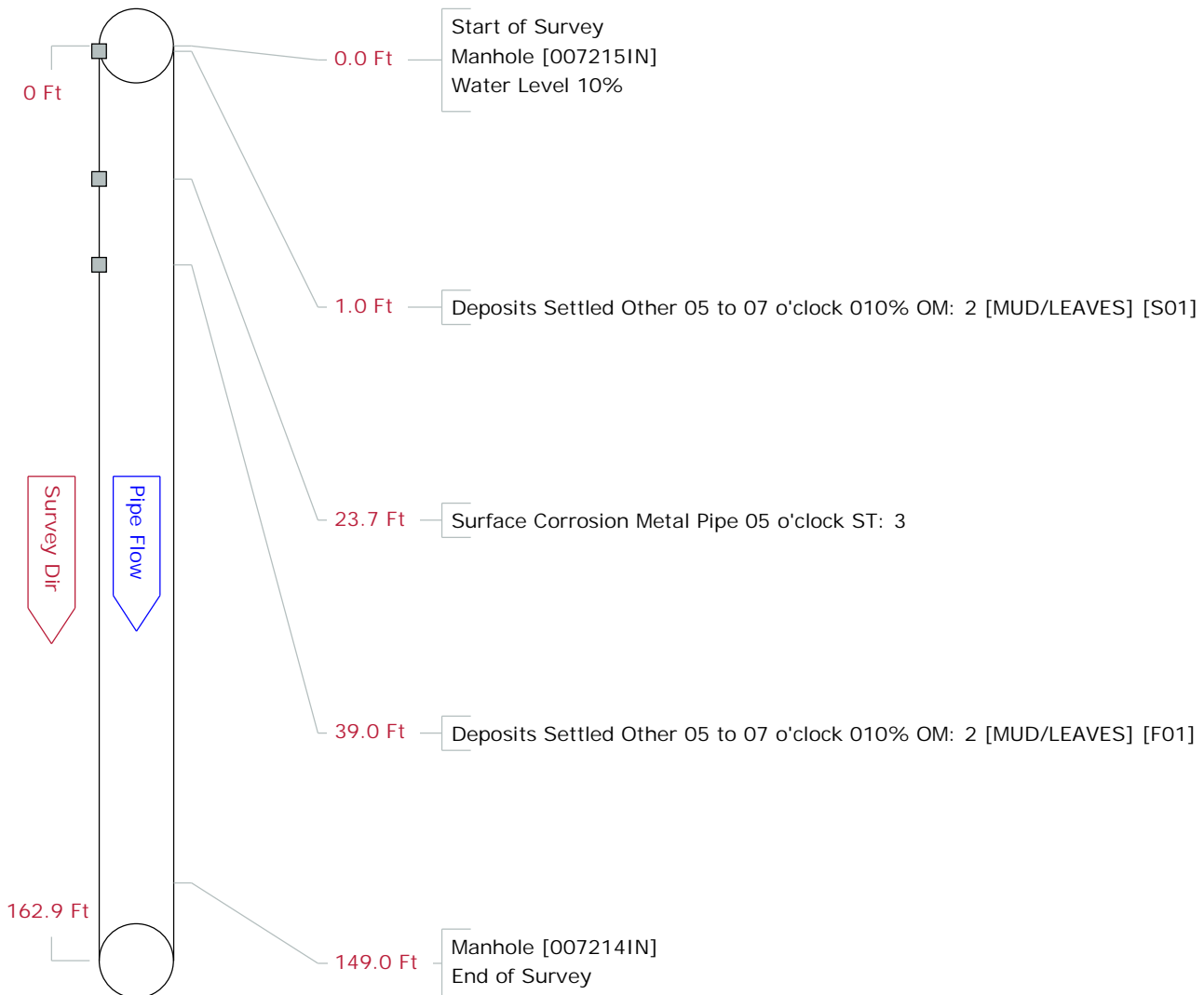
Setup	2	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	CSO-PENDLE	Survey Customer	CH2M HILL				
P/O #	946299	Date	2013/03/25	Time	12:10	Street	1404 PORTNER RD.
City	ALEXANDRIA	Further location details		AT DEAD END OF PORTNER RD.			
Start	007212IN	Rim to invert	4.10	Grade to invert		Rim to grade	Ft
Finish	007214IN	Rim to invert	3.20	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control		Not Controlled	Media No
Shape	Circular	Height	15	Width	ins	Preclean	J
Material	Corrugated Metal Pipe	Joint length	3.0	Ft	Total length	29.7	Ft
Lining		Year laid		Year rehabilitated		Weather	Light Rain
Purpose	Routine Assessment			Cat			
Additional info							
Location	Light Highway						
Project	CASSA_CCTV_20130324_20130330_SMU					Work Order	
Northing	Easting		Elevation				
Coordinate System			GPS Accuracy				



Pipe Graphic Report of PSR 007961STMP

for CH2MHILL

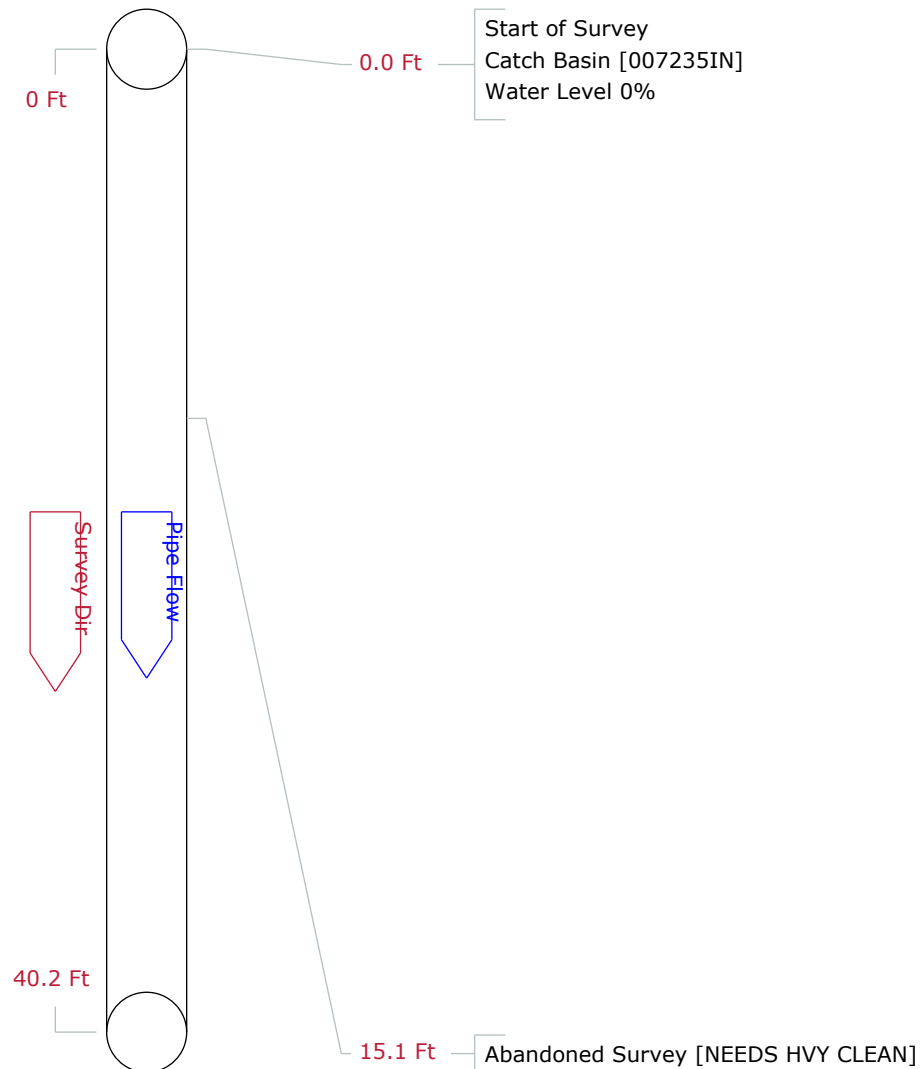
Setup 1	Surveyor SMU	Certificate # U-809-9223	System Owner CITY OF ALEXANDRIA
Drainage CSO-PENDLE	Survey Customer CH2M HILL		
P/O # 946299	Date 2013/03/25	Time 10:26	Street 1321 POWHATAN ST.
City ALEXANDRIA	Further location details IN REAR PARKING LOT OF CUI CABLE SERVICES		
Start 007215IN	Rim to invert 3.80	Grade to invert	Rim to grade Ft
Finish 007214IN	Rim to invert 3.20	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Downstream	Flow control Not Controlled	Media No CH2M-3-25
Shape Circular	Height 18	Width ins	Preclean J
Material Corrugated Metal Pipe	Joint length 8.0	Ft	Total length 162.9
Lining	Year laid	Year rehabilitated	Weather Light Rain
Purpose Routine Assessment	Cat		
Additional info FOUND TO BE 18in NOT 15in AS SHOWN ON SPREADSHEET			
Location Parking Lot			
Project CASSA_CCTV_20130324_20130330_SMU			Work Order
Northing	Easting	Elevation	
Coordinate System		GPS Accuracy	



Pipe Graphic Report of PSR 007151STMP

for CH2M HILL

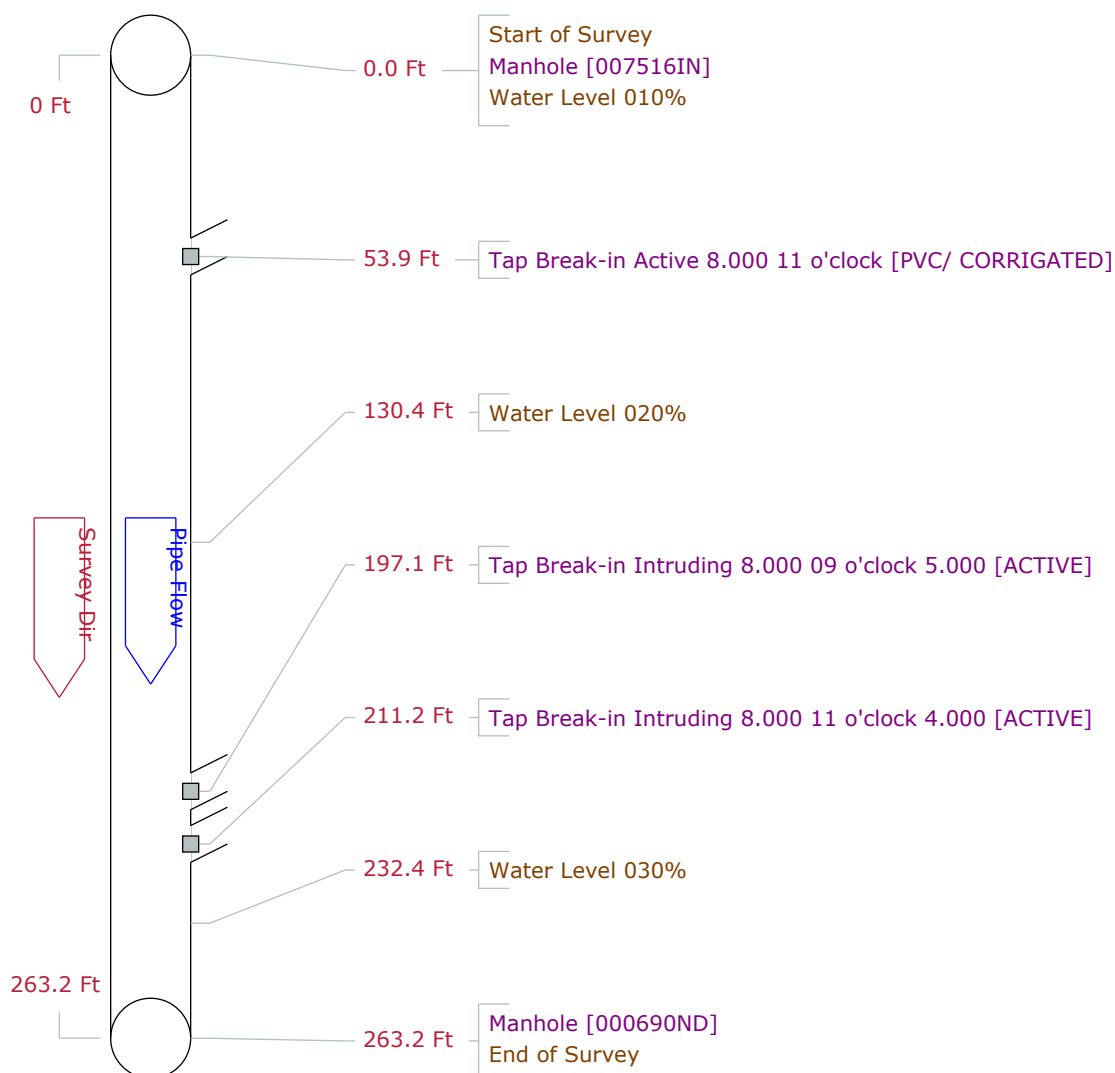
Setup	9	Surveyor	EC	Certificate #	U-907-5678	System Owner	ALEXANDRIA
Drainage	CSO PENDLE	Survey Customer	CH2M HILL				
P/O #	-	Date	2013/04/15	Time	16:02	Street	ORONOCO ST.
City	ALEXANDRIA	Further location details	NEEDS HVY CLEAN NO ACCESS TO DOWNSTREAM				
Start	007235IN	Rim to invert	4.80	Grade to invert		Rim to grade	Ft
Finish	0001067ND	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2MH 4-15
Shape	Circular	Height	15	Width	ins	Preclean J	Year Cleaned 2013/04/15
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	40.2	Ft	Length Surveyed 15.10
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related			Cat			
Additional info							
Location				Parking Lot			
Project				CCTV_20130414_20130420_EC			
Northing				Easting			
Coordinate System				Elevation			
				GPS Accuracy			
				Work Order -			



Pipe Graphic Report of PSR 0080765STMP

for CH2MHILL

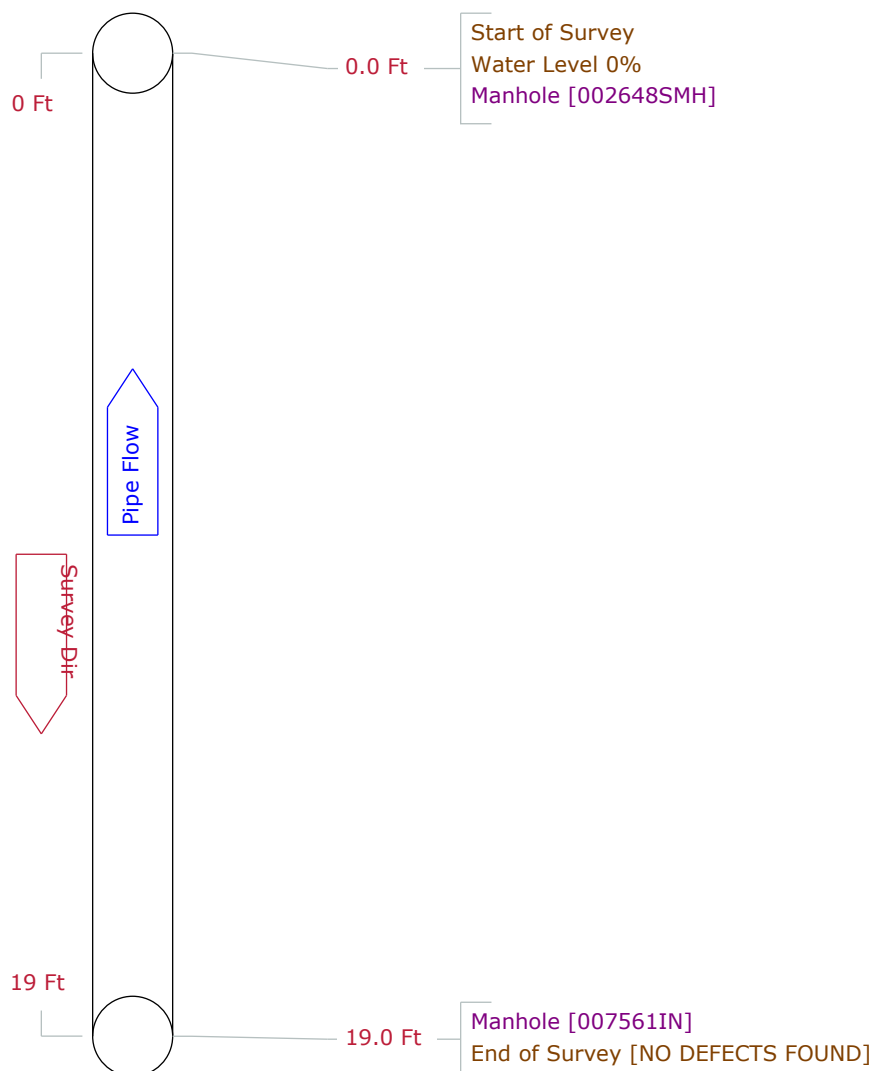
Setup	1	Surveyor	JAW	Certificate #	U-1209-9946	System Owner	CITY OF ALEXANDRIA		
Drainage	HOOFFS RUN			Survey Customer	CH2MHILL				
P/O #	946299	Date	2012/07/24	Time	9:08	Street	1525 KENWOOD AV		
City	ALEXANDRIA		Further location details						
Start	007516IN		Rim to invert		Grade to invert		Rim to grade	Ft	
Finish	000690ND		Rim to invert		Grade to invert		Rim to grade	Ft	
Use	Stormwater		Direction	Downstream	Flow control	Not Controlled	Media No	CH72412	
Shape	Circular		Height	60	Width	ins	Preclean J	Year Cleaned	
Material	Corrugated Metal Pipe		Joint length	10.0	Ft	Total length	Ft	Length Surveyed	263.20
Lining			Year laid			Year rehabilitated	Weather	Dry	
Purpose	Maintenance Related				Cat				
Additional info						Structural	O&M	Constructional	
Location						Parking Lot	Miscellaneous	Hydraulic	
Project						CASSA_CCTV_20120722_20120728_DB			
						Work Order			
Northing			Easting			Elevation			
Coordinate System						GPS Accuracy			



Pipe Graphic Report of PSR 009091STMP

for CH2M HILL

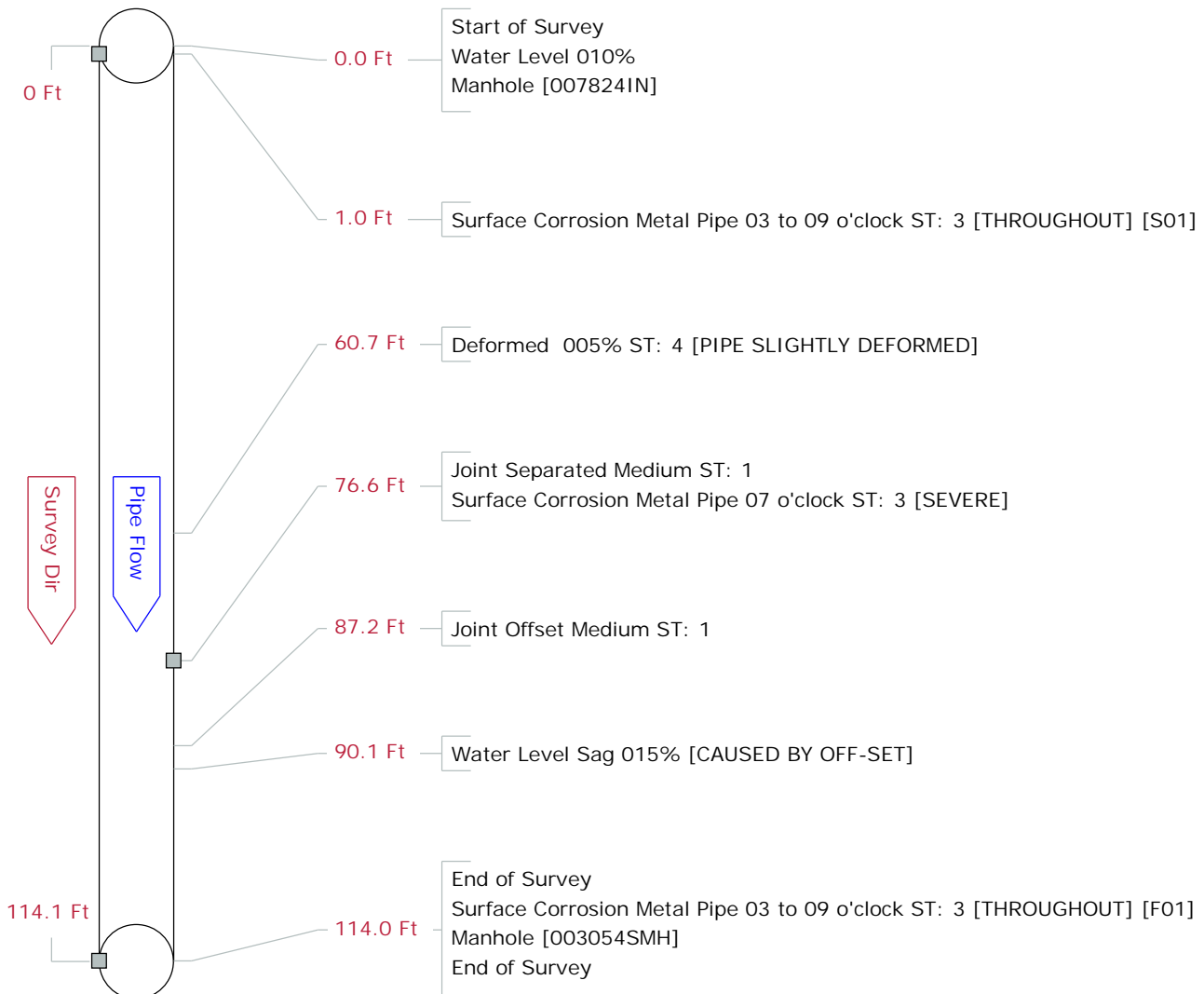
Setup	7	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/07/17	Time	13:22	Street	2316 VALLEY DR.
City	ALEXANDRIA	Further location details (INDEX TILE)D-8A					
Start	002648SMH	Rim to invert	2.50	Grade to invert		Rim to grade	Ft
Finish	007561IN	Rim to invert	7.20	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-7-17
Shape	Circular	Height	15	Width	15 ins	Preclean	J
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	18.2	Ft
Lining		Year laid		Year rehabilitated		Weather	Dry
Purpose	Maintenance Related	Cat					
Additional info	LIGHT CLEAN	<div> <div>Structural</div> <div>O&M</div> <div>Constructional</div> </div>					
Location	Yard	<div> <div>Miscellaneous</div> <div>Hydraulic</div> </div>					
Project	CASSCA_CCTV_20120715_20120721_SMU	Work Order					
Northing		Easting		Elevation			
Coordinate System		GPS Accuracy					



Pipe Graphic Report of PSR 009582STMP

for CH2M HILL

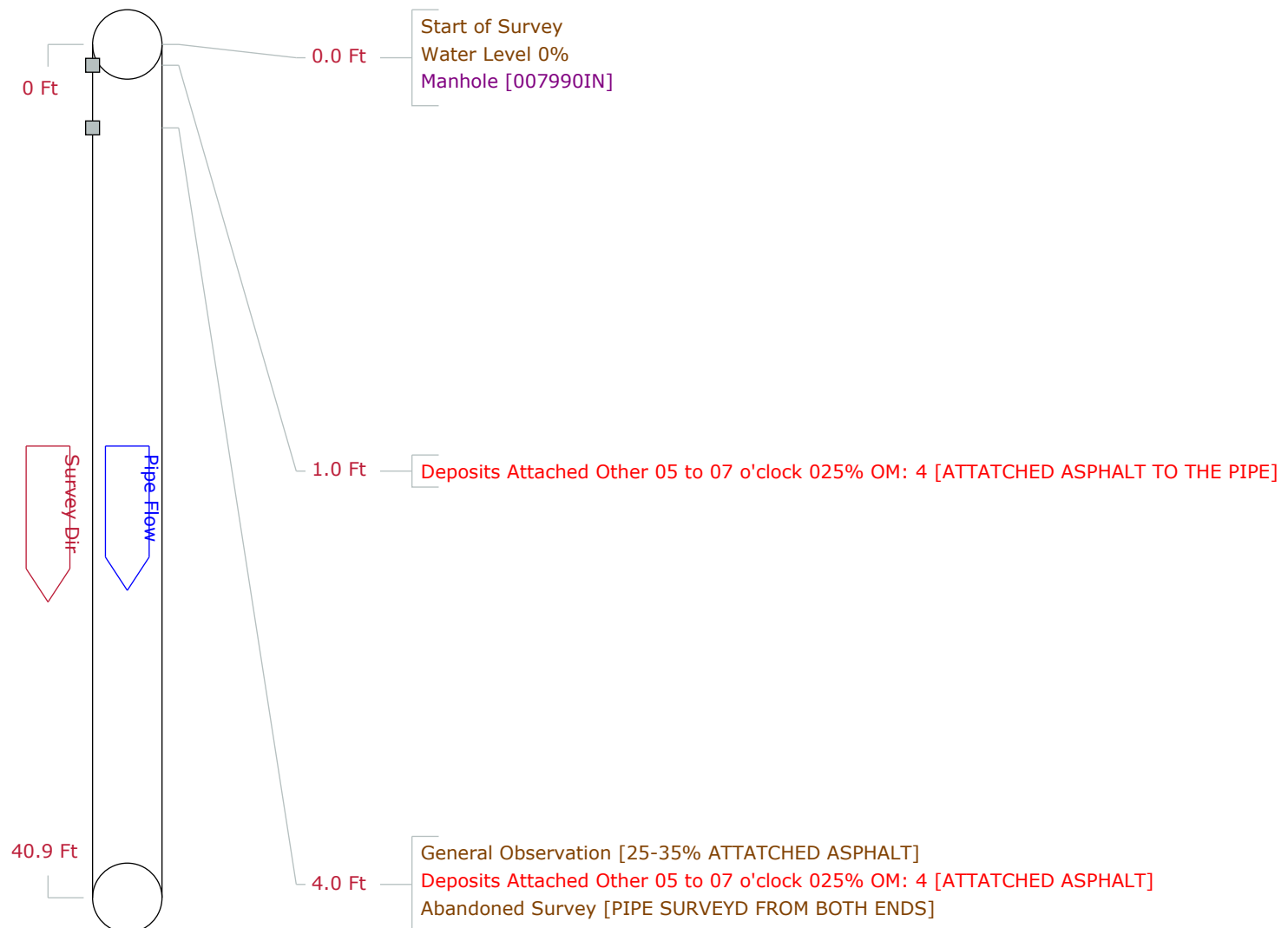
Setup 1	Surveyor SMU	Certificate # U-809-9223	System Owner CITY OF ALEXANDRIA
Drainage HOOFS RUN	Survey Customer CH2M HILL		
P/O #	Date 2012/07/18	Time 13:05	Street 1200 N.FAYETTE ST.
City ALEXANDRIA	Further location details (INDEX TILE)E-11C		
Start 007824IN	Rim to invert 3.80	Grade to invert	Rim to grade Ft
Finish 003054SMH	Rim to invert 3.50	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Downstream	Flow control Not Controlled	Media No CH2M-7-20
Shape Egg Shaped	Height 18 Width 24 ins	Preclean J	Year Cleaned 2012/07/20
Material Corrugated Metal Pipe	Joint length 2.0 Ft	Total length 114.1 Ft	Length Surveyed 114.00
Lining	Year laid	Year rehabilitated	Weather Light Rain
Purpose Maintenance Related	Cat		
Additional info LIGHT CLEAN			
Location Light Highway			
Project CASSCA_CCTV_20120715_20120721_SMU			Work Order
Northing	Easting	Elevation	
Coordinate System		GPS Accuracy	



Pipe Graphic Report of PSR 009864STMP-R

for CH2M HILL

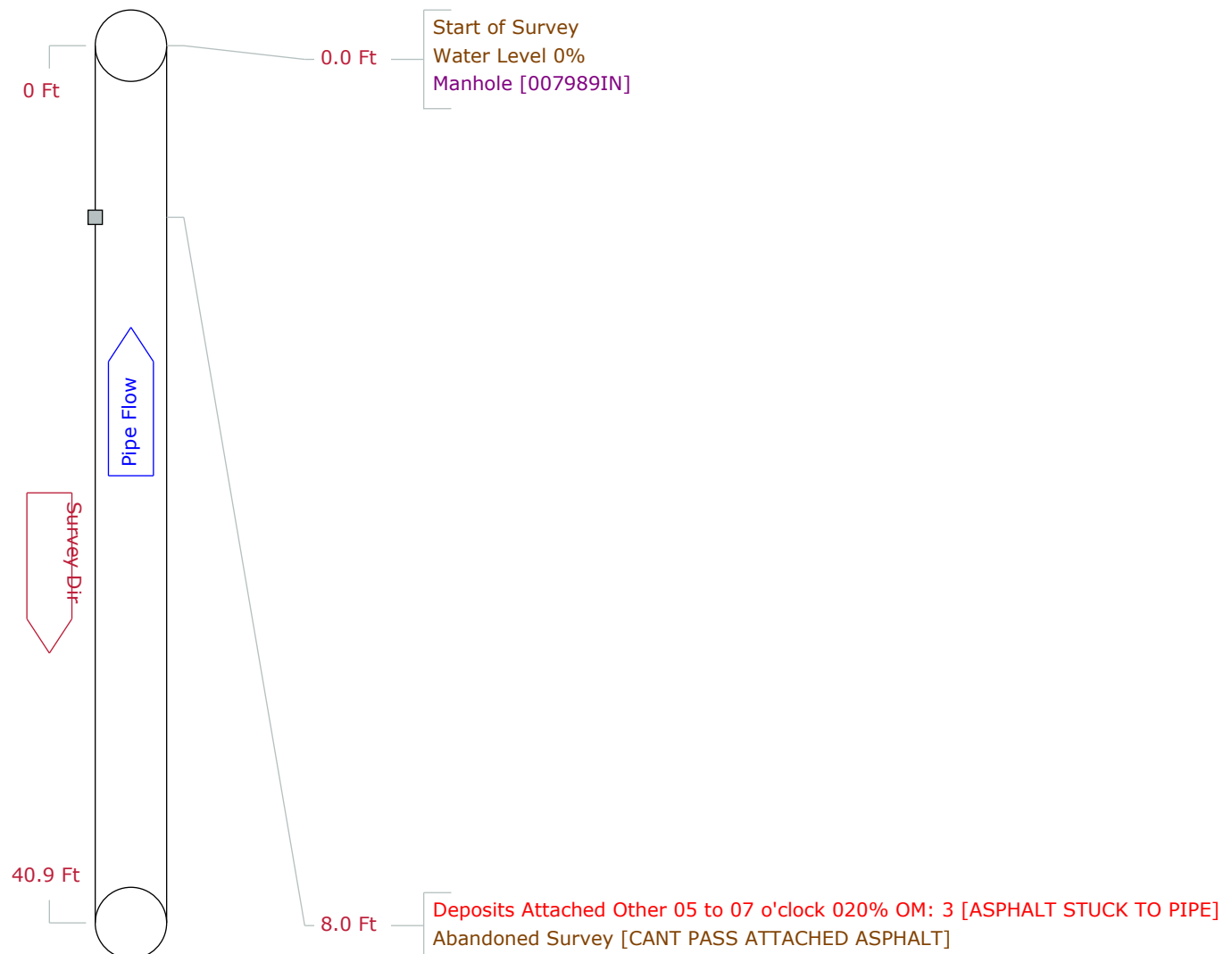
Setup	15	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/07/20	Time	8:43	Street	426 E.MONROE AVE.
City	ALEXANDRIA	Further location details	(INDEX TILE)D-10B,,IN FRONT OF PLAYGROUND ON DUNCAN AVE				
Start	007990IN	Rim to invert	2.50	Grade to invert		Rim to grade	Ft
Finish	007989IN	Rim to invert	3.00	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Downstream	Flow control	Not Controlled	Media No	CH2M-7-20
Shape	Circular	Height	12	Width	ins	Preclean J	Year Cleaned 2012/07/20
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	40.9	Ft Length Surveyed 04.00
Lining		Year laid		Year rehabilitated		Weather	Damp
Purpose	Maintenance Related			Cat			
Additional info	LIGHT CLEAN,,REVERSE SET-UP					Structural	O&M
Location	Sidewalk					Miscellaneous	Hydraulic
Project	CASSCA_CCTV_20120715_20120721_SMU					Work Order	
Northing		Easting		Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 009864STMP

for CH2M HILL

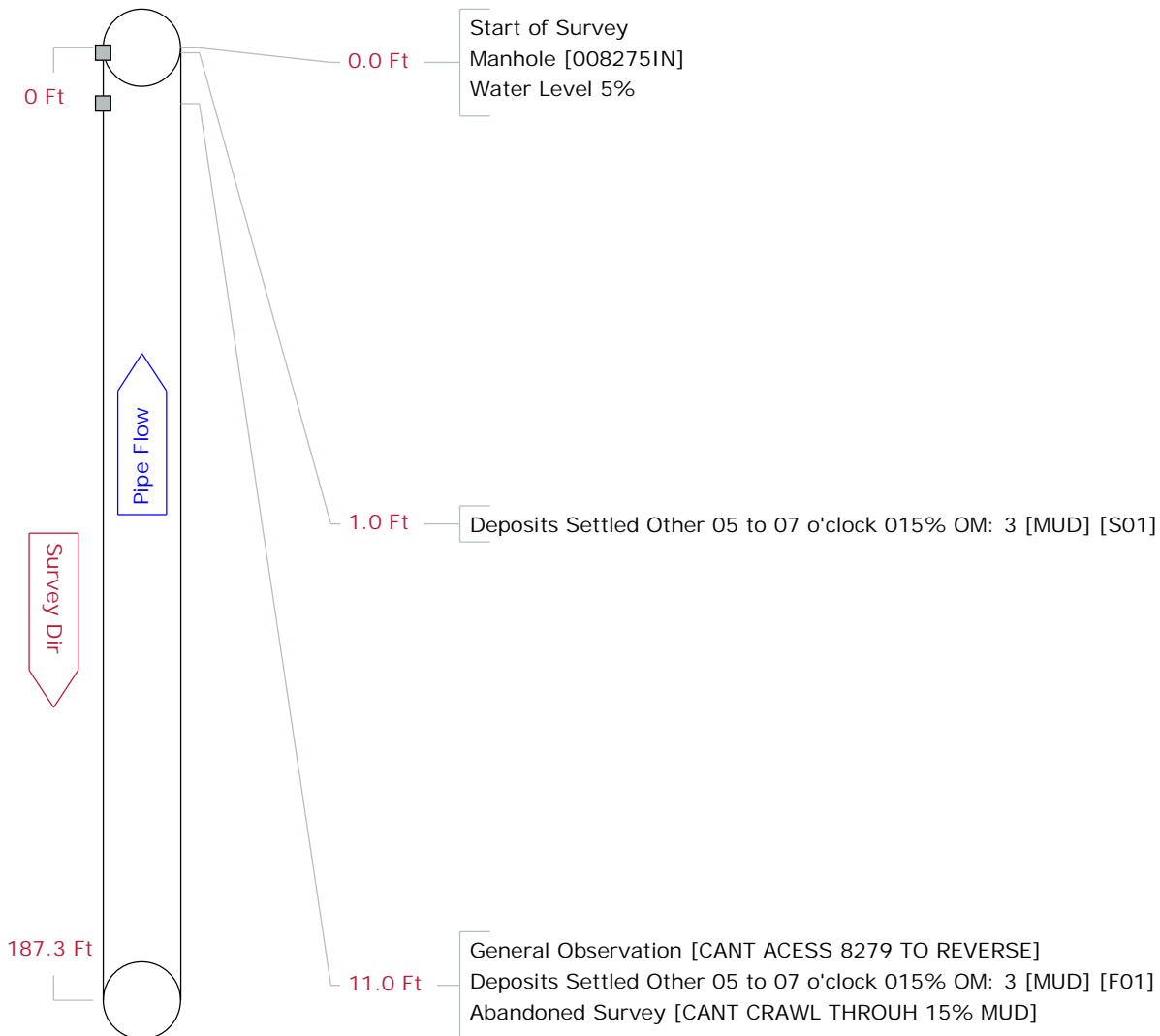
Setup	14	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	HOOFS RUN	Survey Customer	CH2M HILL				
P/O #		Date	2012/07/20	Time	8:19	Street	426 E.MONROE AVE.
City	ALEXANDRIA	Further location details	(INDEX TILE)D-10B,,IN FRONT OF PLAYGROUND ON DUNCAN AVE				
Start	007989IN	Rim to invert	3.00	Grade to invert		Rim to grade	Ft
Finish	007990IN	Rim to invert	2.50	Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control	Not Controlled	Media No	CH2M-7-20
Shape	Circular	Height	12	Width	ins	Preclean J	Year Cleaned 2012/07/20
Material	Corrugated Metal Pipe	Joint length	2.0	Ft	Total length	40.9	Ft Length Surveyed 08.00
Lining		Year laid		Year rehabilitated		Weather	Damp
Purpose	Maintenance Related			Cat			
Additional info	LIGHT CLEAN					Structural	O&M
Location	Sidewalk					Miscellaneous	Hydraulic
Project	CASSCA_CCTV_20120715_20120721_SMU					Constructional	
Northing		Easting		Elevation		Work Order	
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR 010890STMP

for CH2M HILL

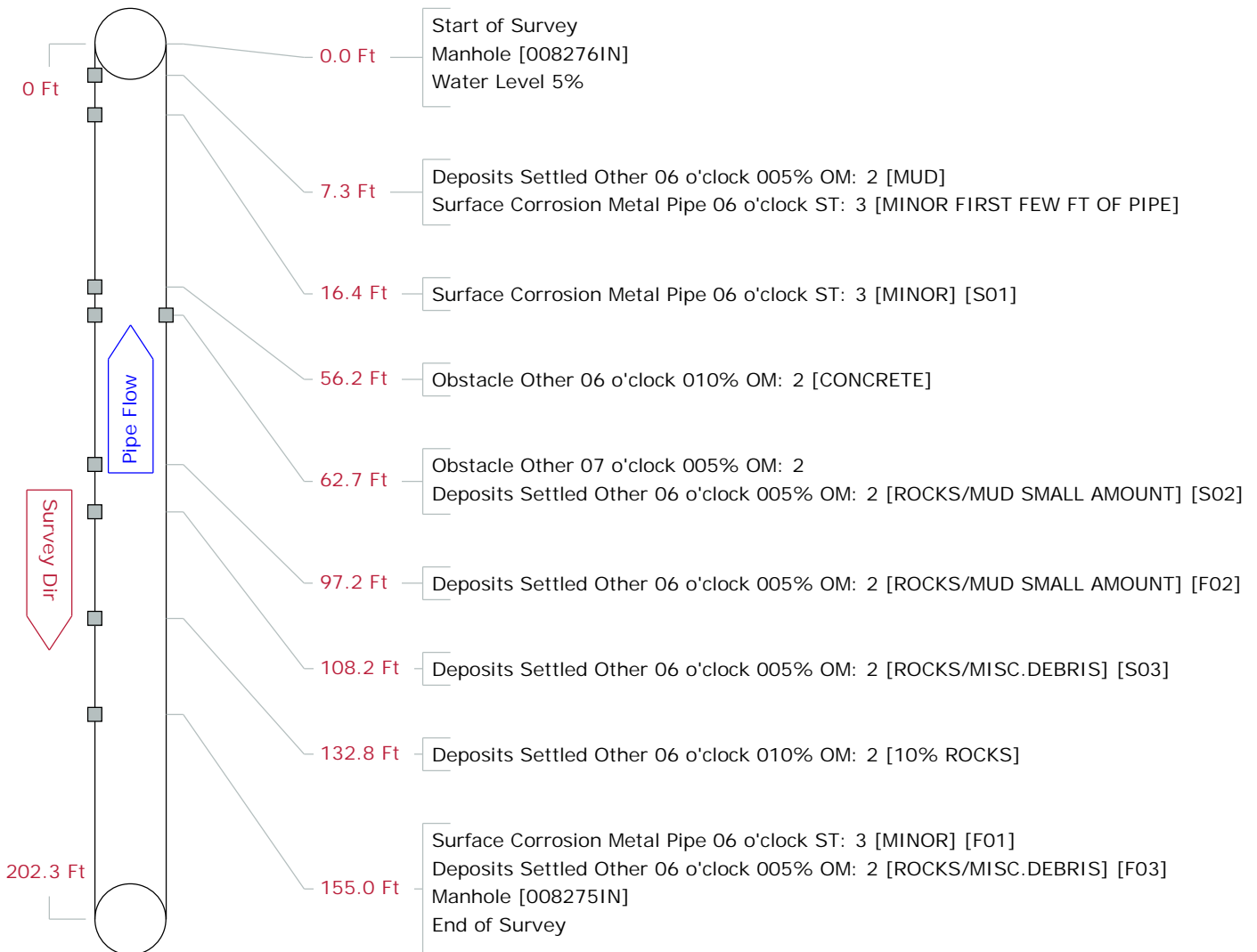
Setup 16	Surveyor SMU	Certificate # U-809-9223	System Owner CITY OF ALEXANDRIA
Drainage POTOMAC RIVER	Survey Customer CH2M HILL		
P/O #	Date 2012/10/08	Time 15:02	Street 2300 JEFFERSON DAVIS
City ALEXANDRIA	Further location details (INDEX TILE) C-10d IN R.O.W. BEHIND HOUSES THAT FACE RANDOLPH AV		
Start 008275IN	Rim to invert 4.10	Grade to invert	Rim to grade Ft
Finish 008279IN	Rim to invert 4.00	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Upstream	Flow control Not Controlled	Media No CH2M-10-8
Shape Circular	Height 18	Width ins	Preclean J
Material Corrugated Metal Pipe	Joint length 20.0 Ft	Total length 187.3 Ft	Length Surveyed 11.00
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Maintenance Related	Cat		
Additional info C.N.A.008279 TO DO A REVERSE INSPEC.			
Location Easement/Right of Way			
Project CASSCA_CCTV_20121007-20121013_SMU			
Work Order			
Northing	Easting	Elevation	
Coordinate System		GPS Accuracy	



Pipe Graphic Report of PSR 010889STMP

for CH2M HILL

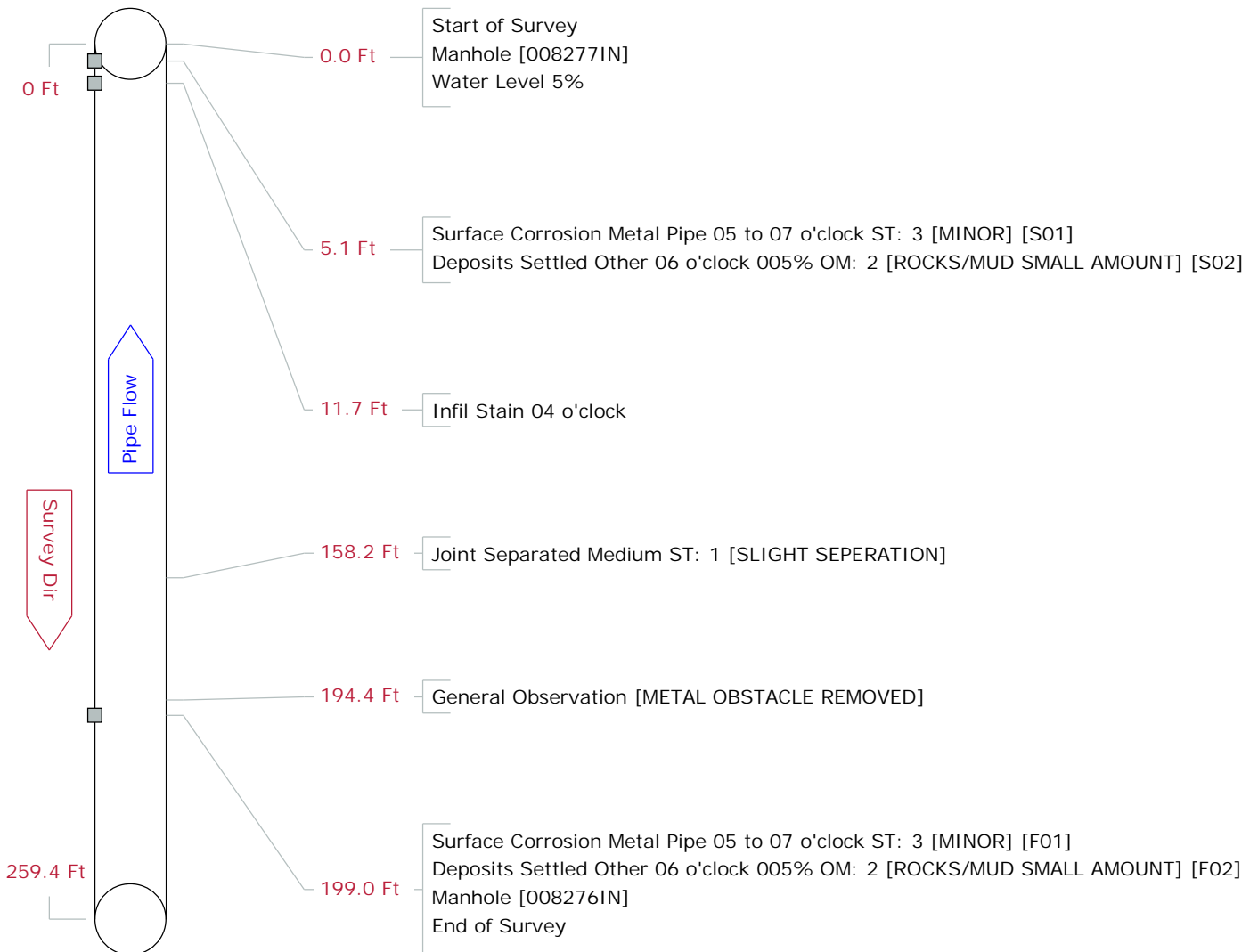
Setup	17	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	POTOMAC RI	Survey Customer	CH2M HILL				
P/O #		Date	2012/10/08	Time	14:35	Street	2300 JEFFERSON DAVIS
City	ALEXANDRIA	Further location details			(INDEX TILE) C-11c IN R.O.W. BEHIND HOUSES THAT FACE RANDOLPH AV		
Start	008276IN		Rim to invert	6.20	Grade to invert		Rim to grade
Finish	008275IN		Rim to invert	4.10	Grade to invert		Rim to grade
Use	Stormwater		Direction	Upstream	Flow control	Not Controlled	Media No
Shape	Circular		Height	18	Width	ins	Preclean J
Material	Corrugated Metal Pipe		Joint length	20.0	Ft	Total length	202.3
Lining			Year laid		Year rehabilitated		Weather
Purpose	Maintenance Related				Cat		Dry
Additional info							
Location	Easement/Right of Way						
Project	CASSCA_CCTV_20121007-20121013_SMU					Work Order	
Northing			Easting		Elevation		
Coordinate System			GPS Accuracy				



Pipe Graphic Report of PSR 010888STMP

for CH2M HILL

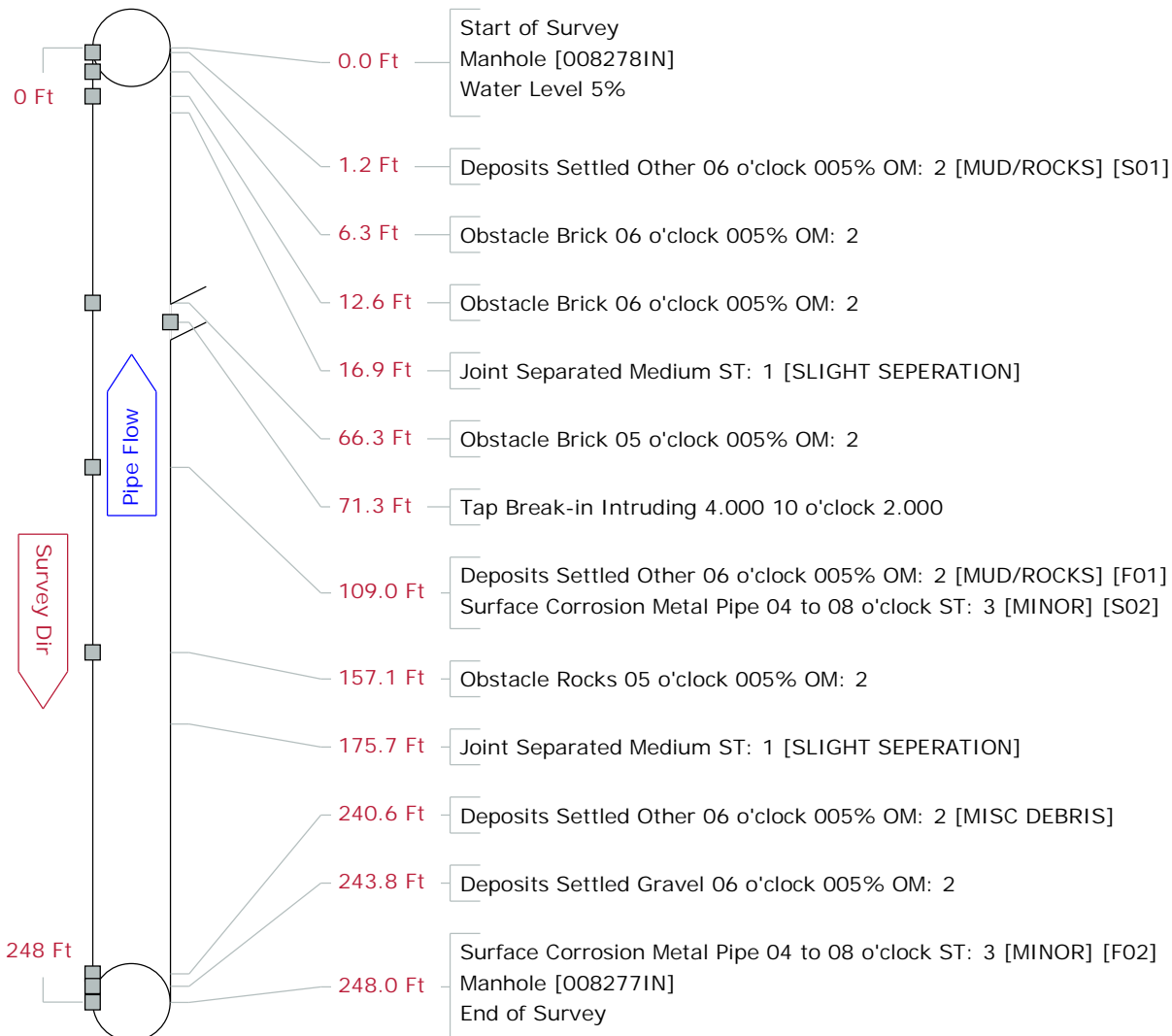
Setup 14	Surveyor SMU	Certificate # U-809-9223	System Owner CITY OF ALEXANDRIA
Drainage POTOMAC RI	Survey Customer CH2M HILL		
P/O #	Date 2012/10/08	Time 13:18	Street 2300 JEFFERSON DAVIS
City ALEXANDRIA	Further location details (INDEX TILE) C-11c IN R.O.W. BEHIND HOUSES THAT FACE RANDOLPH AV		
Start 008277IN	Rim to invert 6.00	Grade to invert	Rim to grade Ft
Finish 008276IN	Rim to invert 6.20	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Upstream	Flow control Not Controlled	Media No CH2M-10-8
Shape Circular	Height 18	Width ins	Preclean J
Material Corrugated Metal Pipe	Joint length 20.0	Ft	Total length 259.4
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Maintenance Related	Cat		
Additional info			
Location Easement/Right of Way			
Project CASSCA_CCTV_20121007-20121013_SMU		Work Order	
Northing	Easting	Elevation	
Coordinate System		GPS Accuracy	



Pipe Graphic Report of PSR 010887STMP

for CH2M HILL

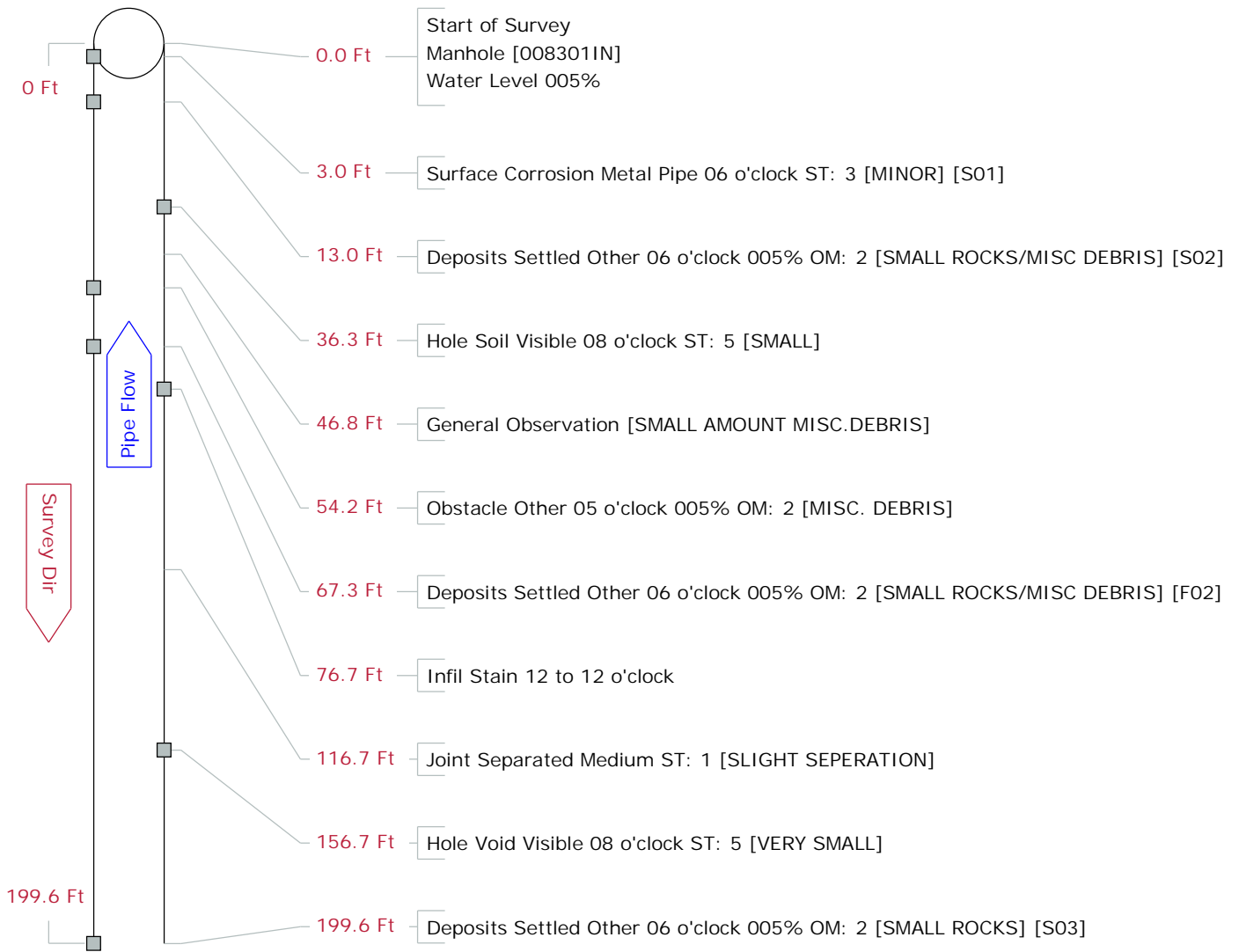
Setup	15	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	POTOMAC RIVER	Survey Customer	CH2M HILL				
P/O #		Date	2012/10/08	Time	11:26	Street	2300 JEFFERSON DAVIS
City	ALEXANDRIA	Further location details			(INDEX TILE) D-11a IN R.O.W. BEHIND HOUSES THAT FACE RANDOLPH AV		
Start	008278IN		Rim to invert	6.20	Grade to invert		Rim to grade
Finish	008277IN		Rim to invert	6.00	Grade to invert		Rim to grade
Use	Stormwater		Direction	Upstream	Flow control	Not Controlled	Media No
Shape	Circular		Height	18	Width	ins	Preclean J
Material	Corrugated Metal Pipe		Joint length	20.0	Ft	Total length	209.2
Lining			Year laid		Year rehabilitated		Weather
Purpose	Maintenance Related				Cat		Dry
Additional info							
Location						Easement/Right of Way	
Project						CASSCA_CCTV_20121007-20121013_SMU	
Northing						Easting	
Coordinate System						Elevation	
						GPS Accuracy	



Pipe Graphic Report of PSR 012184STMP

for CH2M HILL

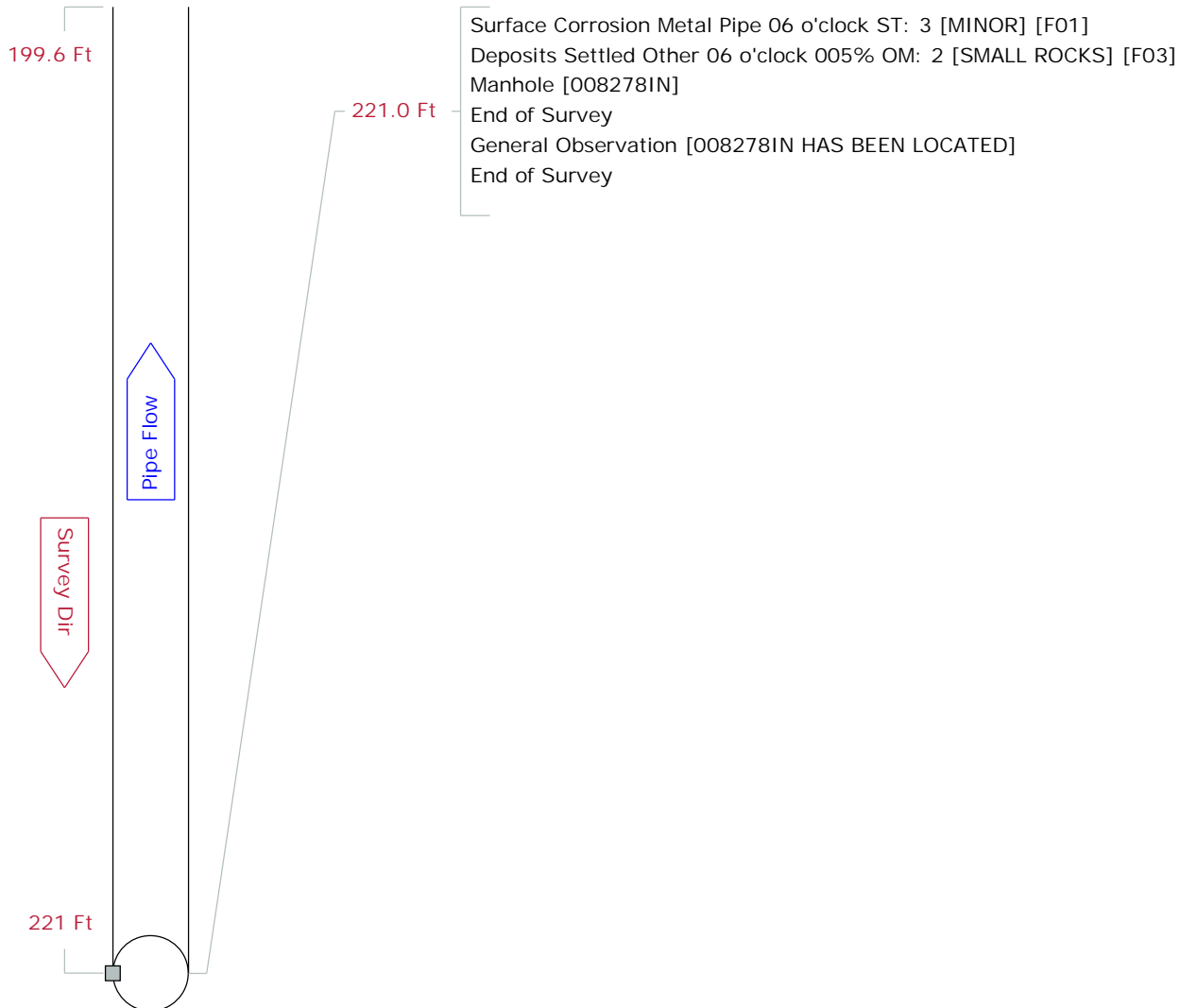
Setup	18	Surveyor	SMU	Certificate #	U-809-9223	System Owner	CITY OF ALEXANDRIA
Drainage	POTOMAC RI	Survey Customer	CH2M HILL				
P/O #		Date	2012/10/08	Time	8:37	Street	2300 JEFFERSON DAVIS
City	ALEXANDRIA	Further location details			(INDEX TILE) D-11a IN R.O.W. BEHIND HOUSES THAT FACE RANDOLPH AV		
Start	008301IN		Rim to invert	6.50	Grade to invert		Rim to grade
Finish	008278IN		Rim to invert	6.20	Grade to invert		Rim to grade
Use	Stormwater		Direction	Upstream	Flow control	Not Controlled	Media No
Shape	Circular		Height	18	Width	ins	Preclean J
Material	Corrugated Metal Pipe		Joint length	20.0	Ft	Total length	146.4
Lining			Year laid		Year rehabilitated		Weather
Purpose	Maintenance Related				Cat		Dry
Additional info	008278 HAS BEEEN LOCATED					Work Order	
Location	Easement/Right of Way						
Project	CASSCA_CCTV_20121007-20121013_SMU						
Northing			Easting		Elevation		
Coordinate System					GPS Accuracy		



Pipe Graphic Report of PSR 012184STMP

for CH2M HILL

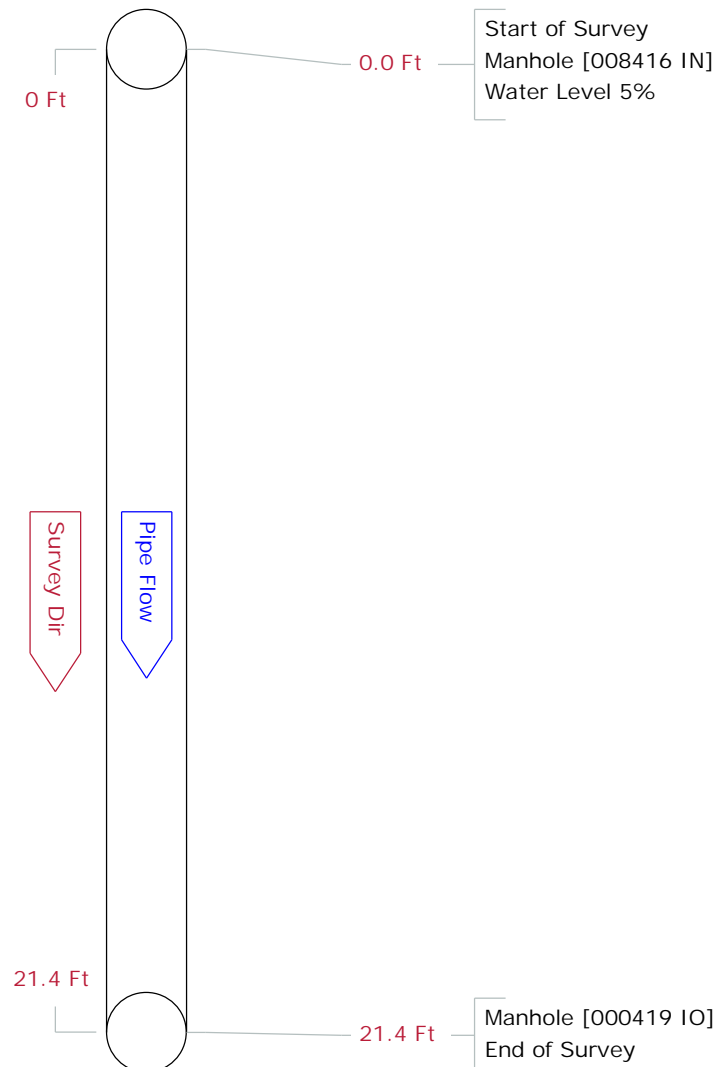
Setup 18	Surveyor SMU	Certificate # U-809-9223	System Owner CITY OF ALEXANDRIA
Drainage POTOMAC RIVER	Survey Customer CH2M HILL		
P/O #	Date 2012/10/08	Time 8:37	Street 2300 JEFFERSON DAVIS
City ALEXANDRIA	Further location details (INDEX TILE) D-11a IN R.O.W. BEHIND HOUSES THAT FACE RANDOLPH AV		
Start 008301IN	Rim to invert 6.50	Grade to invert	Rim to grade Ft
Finish 008278IN	Rim to invert 6.20	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Upstream	Flow control Not Controlled	Media No CH2M-10-8
Shape Circular	Height 18	Width ins	Preclean J
Material Corrugated Metal Pipe	Joint length 20.0 Ft	Total length 146.4 Ft	Length Surveyed 221.00
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Maintenance Related	Cat		
Additional info 008278 HAS BEEEN LOCATED			
Location Easement/Right of Way			
Project CASSCA_CCTV_20121007-20121013_SMU		Work Order	
Northing	Easting	Elevation	
Coordinate System		GPS Accuracy	



Pipe Graphic Report of PSR 012479STMP

for CH2M HILL

Setup 2	Surveyor GTT	Certificate # U-207-4469	System Owner CITY OF ALEXANDRIA
Drainage	Survey Customer		
P/O #	Date 2012/09/13	Time 11:35	Street 601 FOUR MILE RD
City ALEXANDRIA VA	Further location details		
Start 008416 IN	Rim to invert	Grade to invert	Rim to grade Ft
Finish 000419 IO	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary	Direction Downstream	Flow control	Media No 1
Shape Circular	Height 15	Width ins	Year Cleaned 2012/09/13
Material Corrugated Metal Pipe	Joint length	Ft Total length	Ft Length Surveyed 21.40
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose	Cat		
Additional info			
Location Sidewalk			
Project CASSA_CCTV_20120909_20120914_DB		Work Order	
Northing	Easting	Elevation	
Coordinate System		GPS Accuracy	



Appendix G – PACP Score Reports

Provided by Video Pipe Services (VPS)

CCTV Defect Scores report for Structural defects

Client CH2M HILL								
Project CASSCA_CCTV_20120715_20120721_SMU								
Location						Project Start 07/16/2012		
Database Z:\2012\CH2MHILL\JULY\WEEK-2\DATA\CH2M HILL.MDB						Printed on 07/20/2012		
Setup	PLR	Length	Defects	Pipe Rating	Quick Rating	Mean Pipe Score	Pipe Ratings Index	ICG
4	014550STMP	44.0	32	93	3E00	2.10 0	2.90 0	5
3	007740STMP	30.2	30	88	3D11	2.30 0	2.90 0	5
10	009717STMP	45.5	28	84	3D00	2.00 0	3.00 0	5
8	009627STMP	49.0	27	79	3D11	2.00 0	2.90 0	5
12	010103STMP	37.2	24	72	3C00	1.90 0	3.00 0	5
9	009710STMP	31.4	17	48	3B00	1.70 0	2.80 0	5
11	014551STMP	45.5	16	48	3B00	1.10 0	3.00 0	5
5	009396STMP	286.1	2	2	1200	0.00 0	1.00 0	5
6	009058STMP	86.7	1	1	1100	0.00 0	1.00 0	5
7	009091STMP	18.2	0	0	0000	0.00 0	0.00 0	0
2	007282STMP	22.3	0	0	0000	0.00 0	0.00 0	0
1	007276STMP	44.8	0	0	0000	0.00 0	0.00 0	0
Totals		740.9	177	515				

PACP Quick Rating

Client	CH2M HILL	Contract	Project #
Project	CASSCA_CCTV_20120715_20120721_SMU	Project Start	7/16/2012
Location		UOM	Ft Survey Count 12
Database	Z:\2012\CH2MHILL\JULY\WEEK-2\DATA\CH2M HILL.MDB		Printed On Jul-20-2012

Setup	PSR	From MH	To MH	Length	Size	Mat	Struct	O & M	Overall
1	007276STMP	004477IN	004476IN	46.0	18	CMP	0000	2100	2100
2	007282STMP	004484IN	000305IO	20.0	18	CMP	0000	0000	0000
3	007740STMP	005623IN	002635SMH	38.0	15	CMP	3A11	2100	3A21
4	014550STMP	005623IN	004500SMH	45.0	24	CMP	3A00	0000	3A00
5	009396STMP	004500SMH	002633SMH	94.6	24	CMP	1200	3100	3112
6	009058STMP	002648SMH	000431CB	82.0	18	CMP	1100	0000	1100
7	009091STMP	002648SMH	007561IN	19.0	15	CMP	0000	0000	0000
8	009627STMP	007752IN	000541IO	40.0	15	CMP	3811	4100	4138
9	009710STMP	003432SMH	006207IN	28.0	15	CMP	3500	0000	3500
10	009717STMP	006230IN	006231IN	43.0	15	CMP	3900	0000	3900
11	014551STMP	006230IN	006231IN	43.0	15	CMP	3500	0000	3500
12	010103STMP	003052SMH	003053SMH	37.0	18	CMP	3800	0000	3800

CCTV Defect Scores report for Structural defects

Client CH2M HILL Project CASSCA_CCTV_20120715_20120721_SMU Location Project Start 07/16/2012									
Database Z:\2012\CH2MHILL\CH2MHI-2\JULY\WEEK-4\SUBMITTAL CMP-2 (DELIVERED 10-19-2012)\REPORTS\TEMP\CH2M HILL44.MDB Printed on 12/19/2012									
Setup	PLR	Length	Defects	Pipe Rating	Quick Rating	Mean Pipe Score	Pipe Ratings Index	ICG	
3	009376STMP	25.6	6	16	3511	0.70 0	2.70 0	5	
2	009864STMP-R	40.9	0	0	0000	0.00 0	0.00 0	0	
1	009864STMP	40.9	0	0	0000	0.00 0	0.00 0	0	
Totals		107.4	6	16					

PACP Quick Rating

Client	CH2M HILL	Contract	Project #
Project	CASSCA_CCTV_20120715_20120721_SMU		Project Start 7/16/2012
Location		UOM Ft	Survey Count 3
Database	Z:\2012\CH2MHILL\CH2MHI-2\JULY\WEEK-4\SUBMITTAL CMP-2 (DELIVERED 10-19-2012)\REPORTS\TEMP\CH2M HILL44.MDB		
		Printed On	Dec-19-2012

Setup	PSR	From MH	To MH	Length	Size	Mat	Struct	O & M	Overall
1	009864STMP	007989IN	007990IN	8.0	12	CMP	0000	3100	3100
2	009864STMP-R	007990IN	007989IN	4.0	12	CMP	0000	4200	4200
3	009376STMP	000450CB	002539SMH	24.0	15	CMP	3511	0000	3511

CCTV Defect Scores report for Structural defects

Client CH2MHILL											
Project CASSCA_CCTV_07242012_07272012											
Location										Project Start 01/07/2013	
Database C:\FLEX6\DATA\CH2MHILL.mdb										Printed on 01/07/2013	
Setup	PLR		Length	Defects	Pipe Rating		Quick Rating	Mean Pipe Score		Pipe Ratings Index	ICG
3	014552STMP		122.1	4	20		5400	0.20 0		5.00 0	5
6	008085STMP		7.8	1	5		5100	0.50 0		5.00 0	5
9	012746STMP		402.0	1	4		4100	0.00 0		4.00 0	5
7	009927STMP		55.1	3	4		4100	0.00 0		1.30 0	5
4	006957STMP		80.4	1	4		4100	0.00 0		4.00 0	5
10	011898STMP		61.4	0	0		0000	0.00 0		0.00 0	0
8	007739STMPR		53.0	0	0		0000	0.00 0		0.00 0	0
5	010021STMP		15.4	0	0		0000	0.00 0		0.00 0	0
2	007739STMP		53.6	0	0		0000	0.00 0		0.00 0	0
1	0080765STMP		260.0	0	0		0000	0.00 0		0.00 0	0
Totals			1,110.8	10	37						

PACP Quick Rating

Client	CH2MHILL	Contract	Project #
Project	CASSCA_CCTV_07242012_07272012	Project Start	1/7/2013
Location		UOM Ft	Survey Count 10
Database	C:\FLEX6\DATA\CH2MHILL.mdb	Printed On	Jan-07-2013

Setup	PSR	From MH	To MH	Length	Size	Mat	Struct	O & M	Overall
1	0080765STMP	007516IN	000690ND	263.2	60	CMP	0000	2200	2200
2	007739STMP	002634SMH	002636SMH	158.4	48	CMP	0000	452E	452E
3	014552STMP	003268SMH	002500ND	111.0	48	CMP	5400	2A00	542A
4	006957STMP	004921IN	001663SMH	119.5	36	CMP	4100	2B00	412B
5	010021STMP	003201SMH	006039IN	16.2	15	CMP	0000	0000	0000
6	008085STMP	002510SMH	005426IN	9.1	12	CMP	5100	0000	5100
7	009927STMP	003268SMH	002500ND	112.7	48	CMP	4100	4200	4300
8	007739STMPR	002636SMH	002634SMH	0.0	48	CMP	0000	4100	4100
9	012746STMP	007118IN	000429IO	406.5	39	CMP	4100	4131	4231
10	011898STMP	007149IN	009500IN	117.1	33	CMP	0000	3C00	3C00

CCTV Defect Scores report for Structural defects

Client CH2MHILL									
Project CASSA_CCTV_20120819_20120825_DB									
Location							Project Start 08/23/2012		
Database Z:\2012\CH2MHILL\CH2MHI-2\SEPTEMBER\WEEK-1\GEROGE THOMAS\DATA\CH2MHI-2.MDB							Printed on 01/07/2013		
Setup	PLR	Length	Defects	Pipe Rating		Quick Rating	Mean Pipe Score	Pipe Ratings Index	ICG
4	002799IN		0	0		0000	0.00 0	0.00 0	0
3	002795IN		0	0		0000	0.00 0	0.00 0	0
2	002797IN		0	0		0000	0.00 0	0.00 0	0
1	000979S MH		0	0		0000	0.00 0	0.00 0	0
5	000339ND		0	0		0000	0.00 0	0.00 0	0
Totals		0.0	0	0					

PACP Quick Rating

Client	CH2MHILL	Contract	Project #
Project	CASSA_CCTV_20120819_20120825_DB		Project Start 8/23/2012
Location		UOM Ft	Survey Count 5
Database	Z:\2012\CH2MHILL\CH2MHI-2\SEPTEMBER\WEEK-1\GEROGE THOMAS\DATA\CH2MHI-2.MDB		Printed On Jan-07-2013

Setup	PSR	From MH	To MH	Length	Size	Mat	Struct	O & M	Overall
1	000979S MH	000979SMH	002797IN	91.2	18	CMP	0000	0000	0000
2	002797IN	002797IN	002795IN	138.1	18	CMP	0000	0000	0000
3	002795IN	002795IN	002794IN	73.6	24	CMP	0000	0000	0000
4	002799IN	002799IN	002794IN	50.0	15	CMP	0000	0000	0000
5	000339ND	000979SMH	000339ND	132.1	18	CMP	0000	0000	0000

CCTV Defect Scores report for Structural defects

Client CH2MHILL									
Project CASSA_CCTV_20120826_20120901_DB									
Location							Project Start 08/28/2012		
Database Z:\2012\CH2MHILL\CH2MHI-2\SEPTEMBER\WEEK-1\GEROGE THOMAS\DATA\CH2MHI-2 (2).MDB							Printed on 01/09/2013		
Setup	PLR	Length	Defects	Pipe Rating		Quick Rating	Mean Pipe Score	Pipe Ratings Index	ICG
1	003865STMP		1	3		3100	0.10 0	3.00 0	5
11	005511STMP		0	0		0000	0.00 0	0.00 0	0
10	005436STMP		0	0		0000	0.00 0	0.00 0	0
9	005434STMP		0	0		0000	0.00 0	0.00 0	0
8	005435STMP		0	0		0000	0.00 0	0.00 0	0
7	004613STMP		0	0		0000	0.00 0	0.00 0	0
6	000290ND		0	0		0000	0.00 0	0.00 0	0
5	006851STMP		0	0		0000	0.00 0	0.00 0	0
4	006852STMP		0	0		0000	0.00 0	0.00 0	0
3	002552STMP		0	0		0000	0.00 0	0.00 0	0
2	004444STMP		0	0		0000	0.00 0	0.00 0	0
Totals		0.0	0	0					

PACP Quick Rating

Client	CH2MHILL	Contract	Project #
Project	CASSA_CCTV_20120826_20120901_DB	Project Start	8/28/2012
Location		UOM	Ft Survey Count 11
Database	Z:\2012\CH2MHILL\CH2MHI-2\SEPTEMBER\WEEK-1\GEROGE THOMAS\DATA\CH2MHI-2 (2).MDB		Printed On Jan-09-2013

Setup	PSR	From MH	To MH	Length	Size	Mat	Struct	O & M	Overall
1	003865STMP	002276IN	002275IN	27.0	15	CMP	3100	0000	3100
2	004444STMP	00274IN	000987SMH	20.0	8	CMP	0000	0000	0000
3	002552STMP	002266IN	000284ND	10.6	12	CMP	0000	2100	2100
4	006852STMP	004788IN	004787IN	98.1	48	CMP	0000	0000	0000
5	006851STMP	004787IN	004786IN	67.1	48	CMP	0000	0000	0000
6	000290ND	000290ND	000758SMH	64.0	48	CMP	0000	5100	5100
7	004613STMP	000047CP	000048CP	77.0	4	CMP	0000	0000	0000
8	005435STMP	003711IN	003710IN	33.2	43	CMP	0000	0000	0000
9	005434STMP	003710IN	007309IN	51.8	72	CMP	0000	0000	0000
10	005436STMP	003711IN	003712IN	0.0	8	CMP	0000	0000	0000
11	005511STMP	0013975 MH	003882 IN	31.4	72	CMP			

CCTV Defect Scores report for Structural defects

Client CH2M HILL											
Project CASSCA_CCTV_20120715_20120721_SMU											
Location Project Start 07/16/2012											
Database Z:\2012\CH2MHILL\CH2MHI-2\SEPTEMBER\WEEK-3\SCOTT UZAROWSKI\DATA\CH2M HILL.MDB Printed on 01/08/2013											
Setup	PLR		Length	Defects	Pipe Rating		Quick Rating	Mean Pipe Score		Pipe Ratings Index	ICG
26	000822STMP		59.7	7	28		5432	3.10 0		4.00 0	5
17	0063055STMP		71.9	5	15		3500	0.10 0		3.00 0	5
22	014553STMP		84.0	1	5		5100	0.10 0		5.00 0	5
24	005294STMP		42.2	6	1		1100	0.00 0		0.20 0	5
25	000178STMP		71.0	0	0		0000	0.00 0		0.00 0	0
23	005873STMP		173.8	33	0		0000	0.00 0		0.00 0	0
21	005434STMP		51.8	0	0		0000	0.00 0		0.00 0	0
20	005435STMP		32.3	0	0		0000	0.00 0		0.00 0	0
19	006756STMP		38.5	0	0		0000	0.00 0		0.00 0	0
18	006303STMP		41.3	0	0		0000	0.00 0		0.00 0	0
Totals			666.5	52	49						

PACP Quick Rating

Client	CH2M HILL	Contract	Project #
Project	CASSCA_CCTV_20120715_20120721_SMU		Project Start 7/16/2012
Location		UOM Ft	Survey Count 10
Database	Z:\2012\CH2MHILL\CH2MHI-2\SEPTEMBER\WEEK-3\SCOTT UZAROWSKI\DATA\CH2M HILL.MDB		Printed On Jan-08-2013

Setup	PSR	From MH	To MH	Length	Size	Mat	Struct	O & M	Overall
17	0063055STMP	001384SMH	000550ND	117.0	60	CMP	3500	2500	3525
18	006303STMP	001383SMH	000549ND	123.0	60	CMP	0000	0000	0000
19	006756STMP	001383SMH	001510SMH	4.0	15	CMP	0000	4100	4100
20	005435STMP	003711IN	003710IN	32.0	27	CMP	0000	3421	3421
21	005434STMP	003710IN	003709IN	51.0	27	CMP	0000	3A00	3A00
22	014553STMP	003710IN	002501ND	84.0	27	CMP	5100	3A00	513A
23	005873STMP	001222SMH	000266IO	181.0	24	CMP	0000	2211	2211
24	005294STMP	003298IN	001073SMH	37.0	15	CMP	1100	1100	1200
25	000178STMP	000056IN	000039ND	107.0	42	CMP	0000	2C00	2C00
26	000822STMP	000057IO	000769IN	9.0	24	CMP	5432	0000	5432

CCTV Defect Scores report for Structural defects

Client CH2M HILL									
Project CH2MHILL-2									
Location					Project Start 03/13/2013				
Database Z:\2012\CH2MHILL\CH2MHI-2\OCTOBER\SCOTT UZAROWSKI\SCOTT\DATA\CH2M HILL (2).MDB							Printed on 03/14/2013		
Setup	PLR		Length	Defects	Pipe Rating	Quick Rating	Mean Pipe Score	Pipe Ratings Index	ICG
11	012184STMP		146.4	47	143	523G	0.60 0	3.00 0	5
7	010888STMP		259.4	40	118	3F11	0.60 0	3.00 0	5
10	010889STMP		202.3	29	87	3D00	0.60 0	3.00 0	5
8	010887STMP		209.2	30	86	3D12	0.30 0	2.90 0	5
13	004591STMP		95.6	15	45	3B00	0.50 0	3.00 0	5
12	003268STMP		136.9	33	21	3700	0.20 0	0.60 0	5
4	007065STMP		286.3	6	16	5133	0.40 0	2.70 0	5
15	004230STMP		131.0	5	15	3500	0.10 0	3.00 0	5
5	007343STMP		33.9	7	14	3421	0.80 0	2.00 0	5
1	005479STMP		99.2	7	11	3312	0.10 0	1.60 0	5
6	007343STMP-R		33.9	1	5	5100	1.00 0	5.00 0	5
3	007099STMP		72.4	2	3	3100	0.00 0	1.50 0	5
18	005723STMP		33.8	1	1	1100	0.00 0	1.00 0	5
9	010890STMP		187.3	0	0	0000	0.00 0	0.00 0	0
20	003336STMP		296.3	31	0	0000	0.00 0	0.00 0	0
17	002709STMP		172.0	0	0	0000	0.00 0	0.00 0	0
16	002708STMP		37.0	0	0	0000	0.00 0	0.00 0	0
19	005722STMP		58.2	0	0	0000	0.00 0	0.00 0	0
2	004805STMP		16.4	3	0	0000	0.00 0	0.00 0	0
14	004229STMP		198.2	0	0	0000	0.00 0	0.00 0	0
Totals		2,705.7	257	565					

PACP Quick Rating

Client	CH2M HILL	Contract	Project #
Project	CH2MHILL-2		Project Start 3/13/2013
Location		UOM Ft	Survey Count 20
Database Z:\2012\CH2MHILL\CH2MHI-2\OCTOBER\SCOTT UZAROWSKI\SCOTT\DATA\CH2M HILL (2).MDB			Printed On Mar-14-2013

Setup	PSR	From MH	To MH	Length	Size	Mat	Struct	O & M	Overall
1	005479STMP	004063IN	004040IN	84.0	18	CMP	3312	3221	3521
2	004805STMP	000215IO	001024SMH	14.0	48	CMP	0000	5100	5100
3	007099STMP	002391SMH	002390SMH	75.0	15	CMP	3100	412A	4131
4	007065STMP	002371SMH	005126IN	39.0	15	CMP	5133	4134	5141
5	007343STMP	002364SMH	002363SMH	17.0	18	CMP	3421	4100	4134
6	007343STMP-R	002363SMH	002364SMH	5.0	18	CMP	5100	4100	5141
7	010888STMP	008277IN	008276IN	199.0	18	CMP	3F11	2F00	3F2F
8	010887STMP	008278IN	008277IN	248.0	18	CMP	3D12	312D	3D2D
9	010890STMP	008275IN	008279IN	11.0	18	CMP	0000	3200	3200
10	010889STMP	008276IN	008275IN	155.0	18	CMP	3D00	2C00	3D2C
11	012184STMP	008301IN	008278IN	221.0	18	CMP	523G	2B00	523G
12	003268STMP	000123IO	000125IO	124.0	84	CMP	3700	2900	3729
13	004591STMP	002897IN	002898IN	96.0	24	CMP	3B00	322B	3B2B
14	004229STMP	000861SMH	000871SMH	122.0	60	CMP	0000	412C	412C
15	004230STMP	000861SMH	000871SMH	124.0	60	CMP	3500	2D00	352D
16	002708STMP	001750IN	000598SMH	34.0	60	CMP	0000	3700	3700
17	002709STMP	001751IN	001750IN	172.0	60	CMP	0000	2F00	2F00
18	005723STMP	003721IN	003722IN	32.0	30	CMP	1100	3600	3611
19	005722STMP	003721IN	000471ND	56.0	36	CMP	0000	3126	3126

PACP Quick Rating

Client	CH2M HILL	Contract	Project #
Project	CH2MHILL-2		Project Start 3/13/2013
Location		UOM Ft	Survey Count 20
Database	Z:\2012\CH2MHILL\CH2MHI-2\OCTOBER\SCOTT UZAROWSKI\SCOTT\DATA\CH2M HILL (2).MDB		Printed On Mar-14-2013

Setup	PSR	From MH	To MH	Length	Size	Mat	Struct	O & M	Overall
20	003336STMP	000619SMH	000131IO	320.0	21	CMP	0000	4100	4100

CCTV Defect Scores report for Structural defects

Client CH2MHILL											
Project CASSA_CCTV_20130324_20130330_SMU											
Location							Project Start 03/25/2013				
Database Z:\2013\CH2MHILL\CH2MHI-2\MARCH\WEEK 3\DATA\CH2MHI-2.MDB							Printed on 04/05/2013				
Setup	PLR		Length	Defects	Pipe Rating		Quick Rating	Mean Pipe Score		Pipe Ratings Index	ICG
1	007961STMP		162.9	1	3		3100	0.00 0		3.00 0	5
3	007847STMP		45.0	0	0		0000	0.00 0		0.00 0	0
2	007848STMP		29.7	0	0		0000	0.00 0		0.00 0	0
Totals			237.6	1	3						

PACP Quick Rating

Client	CH2MHILL	Contract	Project #	946299
Project	CASSA_CCTV_20130324_20130330_SMU		Project Start	3/25/2013
Location		UOM	Ft	Survey Count 3
Database	Z:\2013\CH2MHILL\CH2MHI-2\MARCH\WEEK 3\DATA\CH2MHI-2.MDB		Printed On	Apr-05-2013

Setup	PSR	From MH	To MH	Length	Size	Mat	Struct	O & M	Overall
1	007961STMP	007215IN	007214IN	149.0	18	CMP	3100	2800	3128
2	007848STMP	007212IN	007214IN	22.0	15	CMP	0000	0000	0000
3	007847STMP	007212IN	002447SMH	45.0	15	CMP	0000	3129	3129

CCTV Defect Scores report for Structural defects

Client CH2M HILL								
Project CCTV_20130407_20130413_EC								
Location						Project Start 04/11/2013		
Database Z:\2013\CH2MHILL\CH2MHI-2\APRIL\WEEK 2\DATA\CH2M HILL (2).MDB						Printed on 04/24/2013		
Setup	PLR	Length	Defects	Pipe Rating	Quick Rating	Mean Pipe Score	Pipe Ratings Index	ICG
1	009582STMP	114.1	28	80	413C	0.70 0	2.90 0	5
3	007343STMP	33.9	6	14	3421	0.80 0	2.30 0	5
4	007343STMP-R	33.9	1	5	5100	1.00 0	5.00 0	5
15	005723STMP	33.8	1	5	5100	0.20 0	5.00 0	5
14	005479STMP	99.2	1	5	5100	0.10 0	5.00 0	5
5	003336STMP	296.3	0	0	0000	0.00 0	0.00 0	0
6	001829STMP	28.9	0	0	0000	0.00 0	0.00 0	0
7	000198STMP	22.6	0	0	0000	0.00 0	0.00 0	0
8	004591STMP	95.6	0	0	0000	0.00 0	0.00 0	0
11	007099STMP	72.4	0	0	0000	0.00 0	0.00 0	0
12	003844STMP	26.6	0	0	0000	0.00 0	0.00 0	0
13	003848STMP	22.3	0	0	0000	0.00 0	0.00 0	0
9	003268STMP	136.9	26	0	0000	0.00 0	0.00 0	0
10	004229STMA	198.2	0	0	0000	0.00 0	0.00 0	0
2	012479STMP		0	0	0000	0.00 0	0.00 0	0
16	005722STMP	58.2	0	0	0000	0.00 0	0.00 0	0
17	009927STMP	55.1	0	0	0000	0.00 0	0.00 0	0
18	007151STMP	40.2	0	0	0000	0.00 0	0.00 0	0
19	001846STMP	60.6	0	0	0000	0.00 0	0.00 0	0
Totals		1,428.8	63	109				

PACP Quick Rating

Client	CH2M HILL	Contract	Project #
Project	CCTV_20130407_20130413_EC		Project Start 4/11/2013
Location		UOM Ft	Survey Count 19
Database Z:\2013\CH2MHILL\CH2MHI-2\APRIL\WEEK 2\DATA\CH2M HILL (2).MDB			Printed On Apr-23-2013

Setup	PSR	From MH	To MH	Length	Size	Mat	Struct	O & M	Overall
1	009582STMP	007824IN	003054SMH	114.0	18	CMP			
2	012479STMP	008416 IN	000419 IO	21.4	15	CMP			
3	007343STMP	002364SMH	002363SMH	17.0	18	CMP			
4	007343STMP-R	002363SMH	002364SMH	5.0	18	CMP			
5	003336STMP	000131IO	000619SMH	328.0	30	CMP	0000	3100	3100
6	001829STMP	000957IN	000326SMH	20.7	48	CMP	0000	0000	0000
7	000198STMP	000030SMH	000017IO	55.4	30	RCP	0000	0000	0000
8	004591STMP	002897IN	002898IN	99.0	24	CMP	0000	3100	3100
9	003268STMP	000123IO	000125IO	128.9	84	CMP	0000	0000	0000
10	004229STMA	000861SMH	000320ND	133.3	60	CMP			
11	007099STMP	002390SMH	002391SMH	79.4	15	CMP			
12	003844STMP	002242IN	002241IN	28.0	10	CMP			
13	003848STMP	000758SMH	002242IN	7.0	10	CMP			
14	005479STMP	004063IN	004040IN	87.5	18	CMP			
15	005723STMP	003722IN	003721IN	33.1	36	CMP			
16	005722STMP	003721IN	000471ND	58.7	36	CMP			
17	009927STMP	003268SMH	000934ND	120.0	36	CMP			
18	007151STMP	007235IN	0001067ND	15.1	15	CMP			
19	001846STMP	000329SMH	000966IN	0.1	15	CMP			